CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

2.0 PROPOSED ACTION AND ALTERNATIVES

The purpose of this chapter is to identify and describe the alternatives (potential actions) associated with the proposed Cotterel Wind Power Project (Proposed Project) including the Proposed Action and No Action Alternatives. Under the National Environmental Policy Act (NEPA), agencies must:

> "rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which are eliminated from detailed study, briefly discuss the reasons for their having been eliminated [(40 Code of Federal Regulations (CFR) 1502.14(a))]."

Section 1502.14 requires the Environmental Impact Statement (EIS) to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than whether the Applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are technically and economically practical, are feasible, and use common sense, rather than simply desirable from the standpoint of the Applicant (Council of Environmental Quality (CEQ) 4646 FR 18026 [March 23, 1981] as amended).

The proposed Cotterel Mountain Wind Power Project would be located in Cassia and Minidoka counties in south-central Idaho near the communities of Albion, Malta, Declo and Burley. The Proposed Project area is located approximately 52 miles east of Twin Falls, approximately 60 miles west of Pocatello, and 24 miles north of the Idaho/Utah state line (Figure 2.1-1). The Proposed Project area is accessible from Interstate 84 (I-84), State Routes 81 and 77. Existing dirt roads throughout the Proposed Project area provide general access to the Cotterel Mountain Ridgeline and to microwave and communication towers located at the Cotterel Mountain Summit.

2.1 PROPOSED ACTION AND RANGE OF ALTERNATIVES

This Final EIS considers four alternatives:

- Alternative A: The No Action Alternative
- Alternative B: Applicant's Proposed Action
- Alternative C: Agencies Preferred Alternative with fewer but larger output wind turbines, alternative access, alternative transmission line locations and alternative turbine types
- Alternative D: Modification of Alternative C with a reduced number of wind turbines

These alternatives have been developed in accordance with CEQ regulations to provide decision-makers and the public with a clear basis for choice (40 CFR 1502.14). A detailed description of these alternatives is provided below. If selected, Alternative B, C and D would require amending the Cassia Resource Management Plan (RMP). Alternative A would not require an amendment to the RMP.

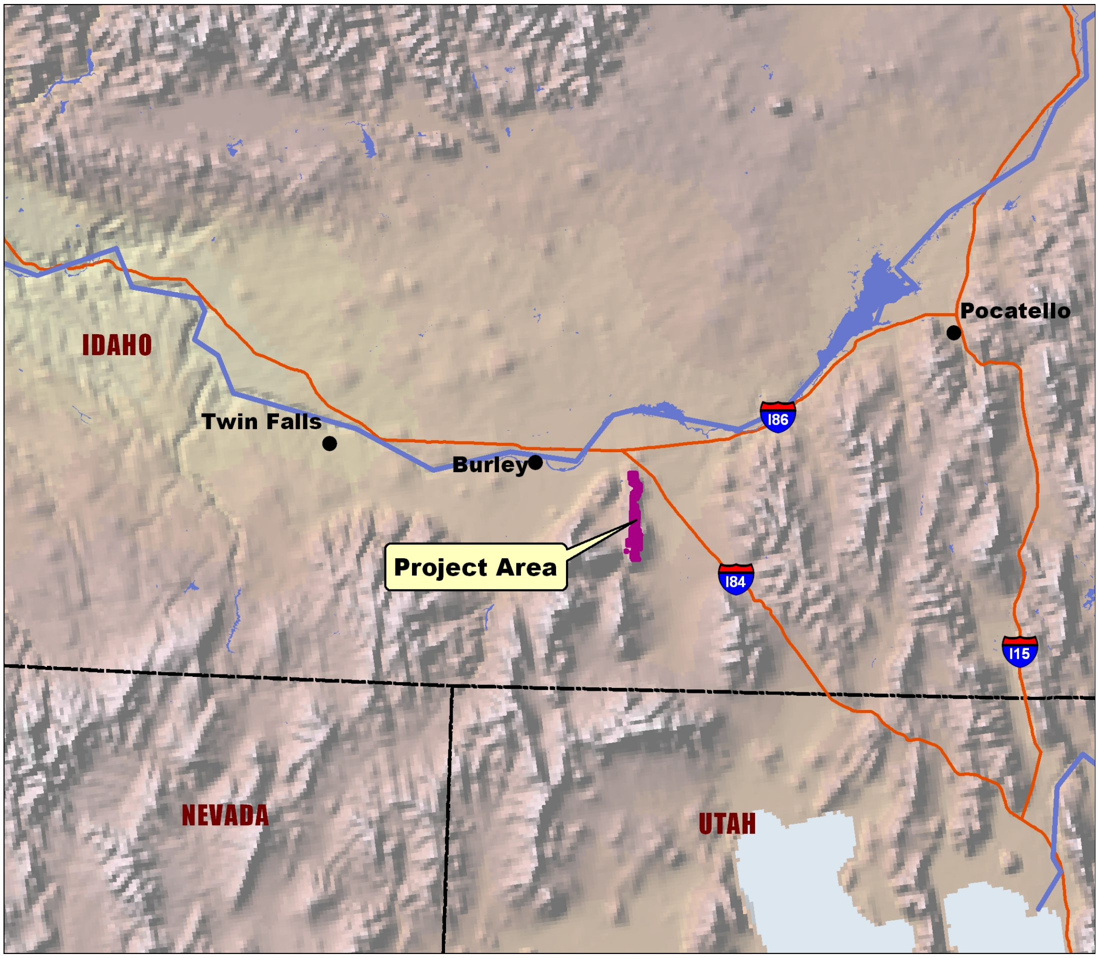


Figure 2.1-1 Project Vicinity Map

2.1.1 Alternatives Considered and Eliminated from Detailed Study

The Bureau of Land Management (BLM) considered two alternatives (Alternatives E and F) that were not carried forward or analyzed in detail. One alternative was proposed as a modification of Alternative D, which attempted to achieve a greater balance between reducing the potential for impacts to sage-grouse habitat and habitat use while maintaining an economically viable wind energy development. The alternative attempted to avoid the most direct suspected impacts to sage-grouse lek use and associated nesting at several key locations on the mountain by eliminating turbines from those areas. This substantially reduced the number of turbines allowed. The other alternative focused on the complete protection of sage-grouse and minimizing possible impacts by severely reducing the numbers of turbines allowed. A description of these alternatives and brief rationale for why they are not analyzed in detail is disclosed in Section 2.7.

2.2 ALTERNATIVE A (NO ACTION)

Background: As required by NEPA, this Final EIS includes Alternative A, a No Action Alternative as the baseline against which the action alternatives can be compared. This baseline also allows for the disclosure of the effects of not developing the proposed wind power project and its associated infrastructure. For purposes of this analysis, Alternative A assumes that no actions associated with the Proposed Project would occur, and existing management of the area would continue to be implemented under the Cassia RMP; therefore, an amendment to the Cassia RMP would not be required for this alternative.

Description of Alternative A: Under Alternative A, the Rights-of-Way (ROW) grant for the construction, O&M of a wind-powered electrical generation facility would not be granted and the RMP would not be amended by the BLM. This alternative would maintain current management practices for resources and allow for the continuation of resources uses at levels identified in the Cassia RMP. This alternative would also incorporate any management decisions that have been made subsequently to the Cassia RMP. This alternative generally satisfies most commodity demands of public lands, while mitigating impacts to sensitive resources. It includes moderate levels of resource protection and development including: wildlife habitat protection; range improvements; vegetation treatments; soil erosion controls; and fire management. In addition, livestock use, recreation activities (including off-highway vehicle use), timber harvest, and land development (energy and communication) would continue at present levels. However, these levels would be subject to adjustments when monitoring studies indicate changing resource conditions or trend has occurred. ROW would also continue to be limited to those allowed under the current RMP.

2.3 PROPOSED PROJECT FEATURES COMMON TO ALL ACTION ALTERNATIVES

The Proposed Project action alternatives would consist of access roads, wind turbines interconnected by a network of utility-grade facilities consisting of transformers at the base of each turbine, underground electric collection lines, substation(s), and transmission interconnect line(s) for connection to the existing utility grid. There would also be several wind speed measuring meteorological towers and an operations and maintenance (O&M) facility sited within the Proposed Project area. All of the wind turbine control systems would be connected by a communications system for computerized automated monitoring of the entire project. A temporary cement batch plant, rock crusher, and construction operation trailer pad would also be located on-site.

The Proposed Project involves one to three linear strings of wind turbine towers that would be sited on three distinct ridgelines on Cotterel Mountain. The towers within each string would be sited approximately one-quarter mile apart. The proposed Cassia RMP amendment is specific to the Cotterel Wind Power Project. No other wind energy projects will be permitted on Cotterel Mountain.

Understanding how a wind power generating facility functions helps better understand the potential effects to resources and other public use of the area and aids in developing responsive management strategies to avoid, reduce and mitigate these effects wherever possible along the turbine string.

The Proposed Project is projected to operate at 0.35 (35%) capacity factor under optimum wind conditions. This means that the project generates 0.35 (35%) of its total nameplate capacity because the wind does not always blow at a speed high enough to turn the blades of the turbines and generate electricity; and at times it blows so fast, i.e., during storms, that the blades are feathered or braked (stopped).

This is not to say that all of the turbines in a project are running 35 percent of the time or that they all are not running 65 percent of the time. Each turbine functions independently of each other. The turbine blades begin to turn when the wind reaches speeds of approximately eight to nine miles per hour or greater. When wind speeds exceed approximately 55 miles per hour, the blades are feathered and turned out of the wind.

Naturally, wind speeds are variable along the length of a mountain ridge. As you move along a 12 to 14 mile turbine string, as is proposed on Cotterel Mountain, each turbine turns independently of the others according to the wind speed at its location. The observer will normally see that some turbines are turning and others are not turning at any given time. Rarely would all the turbines be either turning or not turning at the same time. Each turbine operates as a single entity; some may generate 45 percent of the time and others only 25 percent of the time because of their location on the mountain (it is only the overall project average that is 35%). In summary, it is difficult to predict at what time and how long any one turbine would be turning.

2.3.1 General Features of the Wind Power Project

<u>The Wind Turbines</u>

Wind turbines consist of three main physical components that are assembled and erected during construction: the tower; the nacelle; and the rotor blades. The modern wind turbines under consideration for the Proposed Project have tower heights that range from 210 to 262 feet and rotor diameters that range from 230 to 328 feet (Figure 2.3-1). The number of turbines proposed would range from 66 to 130 depending on the alternative.

Tower: The tower is a tubular freestanding, painted steel structure that is manufactured in multiple sections depending on the required height. Towers are delivered to the site and erected in two or three sections each. Each section is bolted together via an internal flange. An access door is located at the base of each tower. An internal ladder runs to the top of the tower just below the nacelle. The tower is equipped with interior lighting.

Nacelle: The gearbox, generator, and various control equipment are enclosed within the nacelle, which is the housing of the unit that protects the turbine mechanics from environmental exposure. A yaw system is mounted between the nacelle and the top of the tower on which the nacelle resides. The yaw system, which is comprised of a bearing surface for directional rotation of the turbine and a drive system consisting of a drive motor(s) to keep the turbine pointed into the wind to maximize energy capture. A wind vane and anemometer are mounted at the rear of the nacelle to signal the controller with wind speed and direction information.

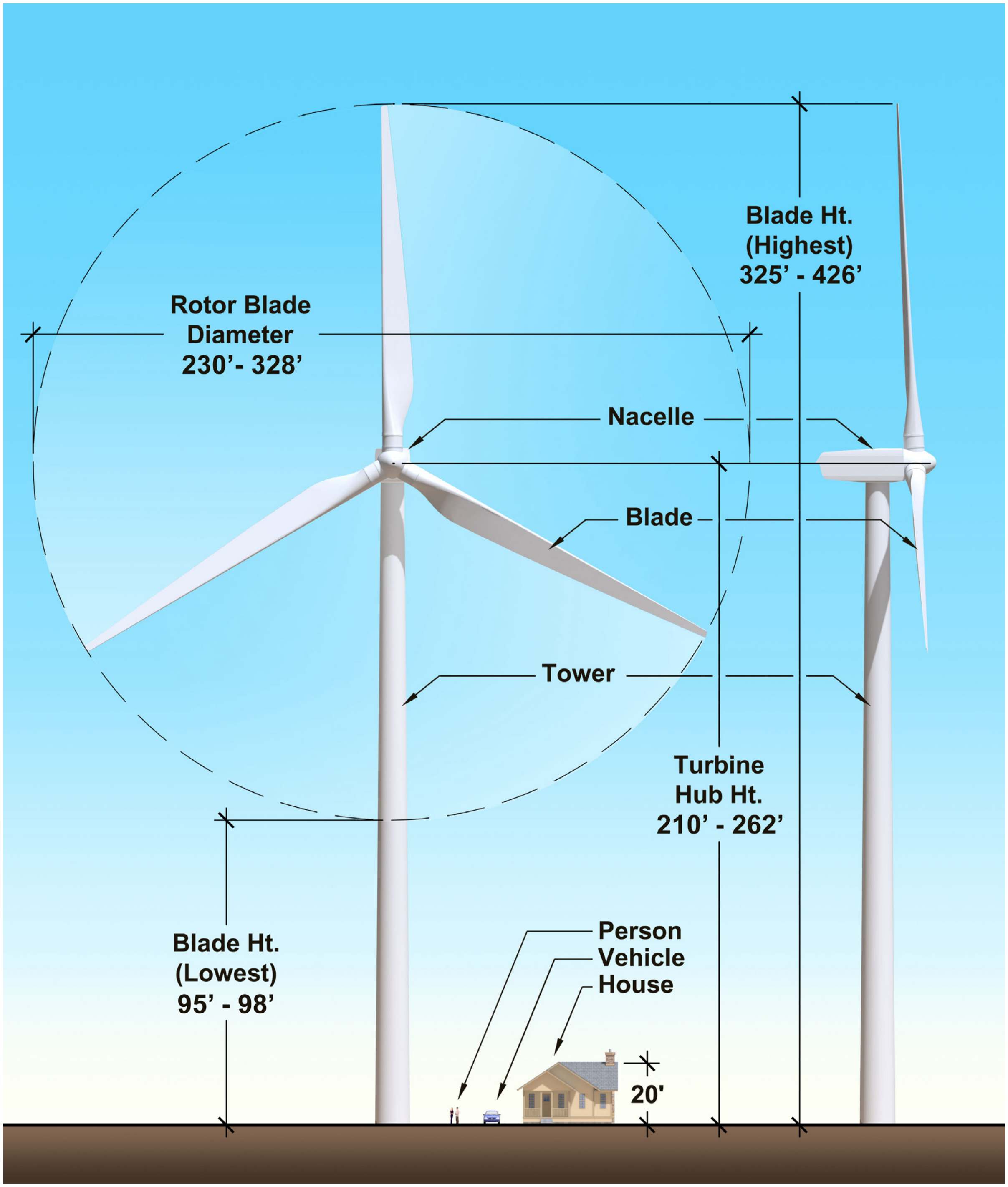


Figure 2.3-1. Diagram of a Typical Wind Turbine.

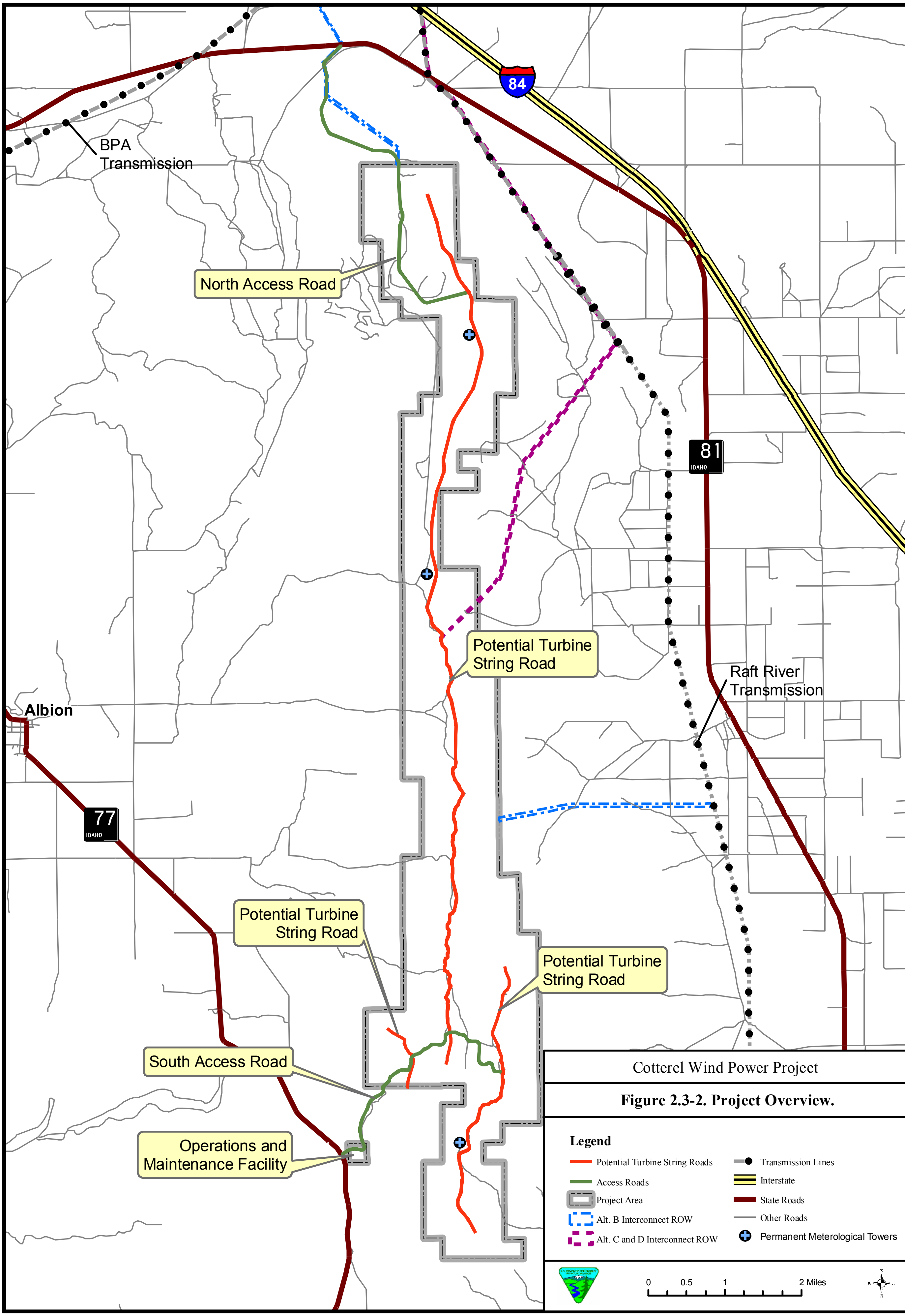
Rotor Blades: Wind turbines are powered by three composite or fiberglass blades connected to a central rotor hub. Wind creates lift on the blades, causing the rotor hub to spin. This rotation is transferred to a gearbox where the speed of rotation is increased to the speed required for the attached electric generator that is housed in the nacelle. The rotor blades turn slowly, typically less than 20 revolutions per minute. The rotor blades are typically made from a glass-reinforced polyester composite. The blades are non-metallic, but are equipped with a sophisticated lightning suppression system.

<u>Roads</u>

Proposed access roads would be located to minimize disturbance, avoid sensitive resources (e.g., raptor nests, cultural resource sites), and maximize transportation efficiency. Each turbine manufacturer has slightly different equipment transport and crane requirements. These requirements dictate road width and road turn radius. The type and brand of turbines installed would be determined by commercial factors within the timeframe of the Proposed Project schedule. To allow safe passage of the large transport equipment used in construction, all-weather gravel roads would be built with adequate drainage and compaction to handle 15-ton per axle loads. Road widths would range between 16 and 35 feet. Passing turnouts would be located approximately every four miles along access roads where needed.

Access to the area would be via Interstate 84 (I-84), State Highway (SH)-81 from the north, or SH-77 from the southwest (Figure 2.3-2). Access to the Proposed Project facilities would be provided by newly constructed extensions of existing access roads, and reconstructed existing access roads that begin from SH-81 and SH-77. New roads would link the individual turbines, substations, and other project facilities.

From the north end of Cotterel Mountain the existing road from SH-81 would be upgraded to an all-weather gravel road and would be the primary access route for all larger turbine components. New all-weather turbine string roads would be constructed to link the turbines. The turbine string roads would be designed to enable the transport of large cranes between each individual turbine. New short spur roads would be constructed along the turbine strings to access each individual turbine. All roads would be constructed for the specific purpose of the Proposed Project. The BLM would require that all roads be designed, built, surfaced, maintained to minimize disturbance, and to provide safe operation conditions at all times.



Cotterel Wind Power Project

Figure 2.3-2. Project Overview.

Electrical System

Each wind turbine generates electricity at approximately 600 volts. The low-voltage from each turbine generator would be increased via a transformer located at each turbine to the 34.5 kilovolt (kV) level required for the medium voltage collector system. The power collection system would consist of medium voltage, high-density insulated underground cables that connect each separate turbine to a substation. These underground cables would be buried in parallel trenches. These trenches would be located within the roadbed of the turbine connector roads, when technically feasible. In some cases underground cable trenches would need to be located outside of the roadbed. At the substation, voltage would be further increased to 138 kV. The stepped-up power would then be delivered through the transmission interconnect lines to the transmission grid.

Communications System

Each wind turbine generator contains electronic devices to constantly monitor turbine performance. Data from these monitoring devices can be read at each turbine. The data would also be distributed via a network of communication cables, and possibly radio links, to the O&M building. Underground communication cables would be buried in the same trenches as the medium voltage electrical system, when technically feasible.

Substations

The main function of the substation is to step-up the voltage from the collection lines (34.5 kV) to the transmission level (138 kV) and to provide fault protection. The basic elements of the step-up substation facilities are a control house, a bank of one or two main transformers, outdoor breakers, capacitor banks, relaying equipment, high voltage bus work, steel support structures, an underground grounding grid and overhead lightning suppression conductors. All of the main outdoor electrical equipment and control house would be installed on a concrete foundation. The exact footprint of the substations would depend largely on the utility requirements, the number of turbines used and the resulting nameplate capacity, which would affect the number of 34.5 kV feeder breakers. Each substation would consist of a graveled footprint area of approximately one acre, a 12-foot chain-link perimeter fence, and an outdoor lighting system. Depending on the alternative, there would either be one or two substations for the entire project.

Transmission Interconnect Lines

The substation(s) would connect the project to existing transmission grid via 138 kV transmission interconnect line. The transmission interconnect line would be hung from two-pole, wooden H-frame structures approximately 60 to 65 feet tall (Figure 2.3-3). In some instances, steel-framed poles would be installed where required due to ice or other loading concerns. Overhead wires would consist of three wires attached to nonspecular (low reflectivity) conductors and two continuous ground wires.

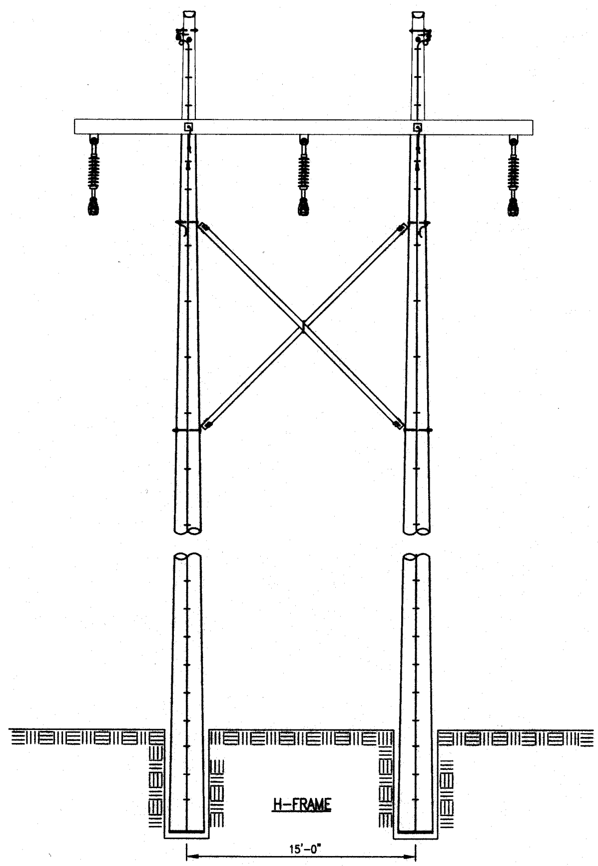


Figure 2.3-3. Typical Wooden H-Frame Transmission Interconnect Line Support Structure.

Meteorological Towers

There will be three permanent anemometer (wind measurement) towers installed at strategic locations along the turbine strings. These towers would be 210 to 263 feet in height and would have anemometers mounted at varying distances above the ground. Information collected from the anemometers would be relayed to the O&M building via the Proposed Projects communication system. The towers would be constructed of either a lattice frame or tubular steel structure and would be made perch-proof to raptors and other large birds.

Operations and Maintenance (O&M) Facility

The O&M facility would be sited at the south access road east of SH-77 near the Conner Creek Summit. The O&M facility would include a main building with offices, spare parts storage, a domestic well, restrooms, a septic system, a shop area, outdoor parking facilities, a turn-around area for larger vehicles, outdoor lighting and a gated access with partial or full perimeter fencing. The O&M building would have a foundation footprint of about 50 by 100 feet. The projected permanent footprint of the O&M facility (including parking area) would be about two acres. The building would be painted to match the surrounding landscape color and would be landscaped with native species of grasses and shrubs matching those found on-site prior to construction.

2.3.2 Construction

The Proposed Project would use standard construction and operation procedures used for other wind power projects in the western United States. These procedures, with minor modification to allow for site-specific circumstances and differences between turbine manufacturers, are summarized below. Additionally, project construction and operations will follow BLM Best Management Practices (BMP) as described in Appendices C and D. The construction of the project is projected to take approximately eight months.

Staging/Equipment Lay-Down Areas

To facilitate the construction of the Proposed Project, project staging areas would be needed. It is anticipated that a single project staging area would be located off-site near I-84 northeast of Cotterel Mountain. This staging area would be sited on private land that would be leased by the Applicant for the duration of the project construction. The staging area would be approximately five acres in size and would be used for the temporary storage of turbine components, construction equipment, and other supplies.

Five equipment lay-down areas would be required for construction of the Proposed Project. The lay-down areas would be used during construction for storage of equipment and facility construction materials, equipment parking and refueling sites, crane assembly and disassembly, a batch plant, waste disposal and collection receptacles, sanitary facilities, and temporary modular office space. The lay-down areas would range from two to five acres in size. The total area of ground disturbance for the five lay-down areas would be approximately 15 acres. In addition to the lay-down area on the project site, there may also be construction marshalling areas in the vicinity of Cotterel Mountain.

Road Construction

To obtain preliminary roadway footprints, profiles and sections were developed for the Proposed Project roads. From these preliminary profiles and sections, estimates of cut-and-fill required to construct the roads were calculated using InRoads® model. Five-foot contour data were used to develop a digital terrain model that represents the existing ground in the InRoads® model. A horizontal alignment was created and overlaid on the digital terrain model. This alignment met the requirements for the type and size of trucks that would be delivering and constructing the Proposed Project. The roadway alignment requires the following design features:

- The road is to be gravel, 16 feet wide, less than two percent crown or inslope with ditch and culverts as required on uphill side.
- Maximum grade is ten percent.
- Maximum allowable dip is six inches in 50 feet. Maximum allowable bump is six inches in 50 feet.
- On turns, the minimum inside radius is 82 feet. The minimum outside radius is 115 feet (so at the apex of a 180 degree turn the road is 33 feet wide).

A profile was then developed from the digital terrain model along the horizontal alignment, and a vertical alignment was developed along the profile that met the requirements. A typical section was developed, that met the requirements, and was placed every 20 feet along the horizontal and vertical alignment. Cut-and-fill lines were developed on the digital terrain model at the 20-foot interval and interpolated between the 20-foot placements.

The numbers generated for area, along with cut-and-fill volumes for the Proposed Project roadways are based on general assumptions and approximate locations of the Proposed Project features. These numbers are for analysis purposes only. Final location of the road and the cut-and-fill volumes would be based on topography and sound engineering principles. Figure 2.3-4 shows a diagram of the typical cross section of the 16-foot wide project access roads. Figure 2.3-5 shows a diagram of the typical cross section of the 35-foot wide turbine string roads.

The minimum full-surfaced width for project access roads would be 16 feet. The roadway along the ridgelines to access the turbine string would be 35 feet in width. There would be no shoulders. Cut-and-fill slopes would be at a ratio of 2:1. Equipment clearance would require a minimum inside radius of 82 feet on all turns, and would be graded to within no more than 6 inches of rise or drop in any 50-foot length. Turnouts to allow for safe passing of construction vehicles would be 64 feet wide and 450 feet in length.

No material quarries will be located on BLM or other federal lands. Any needed fill or road base material in excess of that generated from road cut activities would be obtained from a licensed off-site private source.

Topsoil removed during road construction would be stockpiled at project staging areas. The stockpiled topsoil would be respread on cut-and-fill slopes, and then re-vegetated as soon possible following road construction.

Construction traffic would be restricted to the roads developed for the project. Use of existing unimproved roads would be for emergency situations only. Flaggers with two-way radios would be used to control construction traffic and reduce the potential for accidents along all roads. Speed limits would be set commensurate with road type, traffic volume, vehicle type, and site-specific conditions as necessary to ensure safe and efficient traffic flow.

To avoid unnecessary impacts to vegetation, construction equipment would be limited to construction corridors and to designated staging/equipment lay-down area footprints. Where possible, the BLM Sensitive plant species *Pedio cactus* would be transplanted from road ROW and tower pad sites to areas outside of the project impact area, as approved by the BLM.

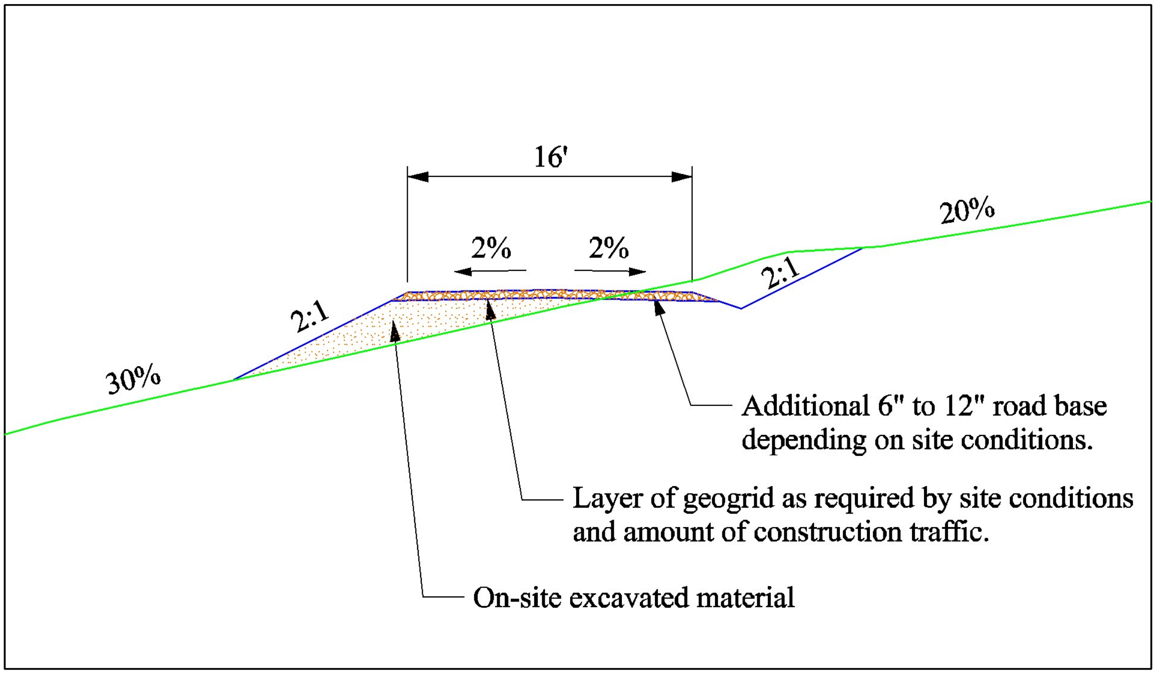


Figure 2.3-4. Typical Cross Section for Project Access Roads.

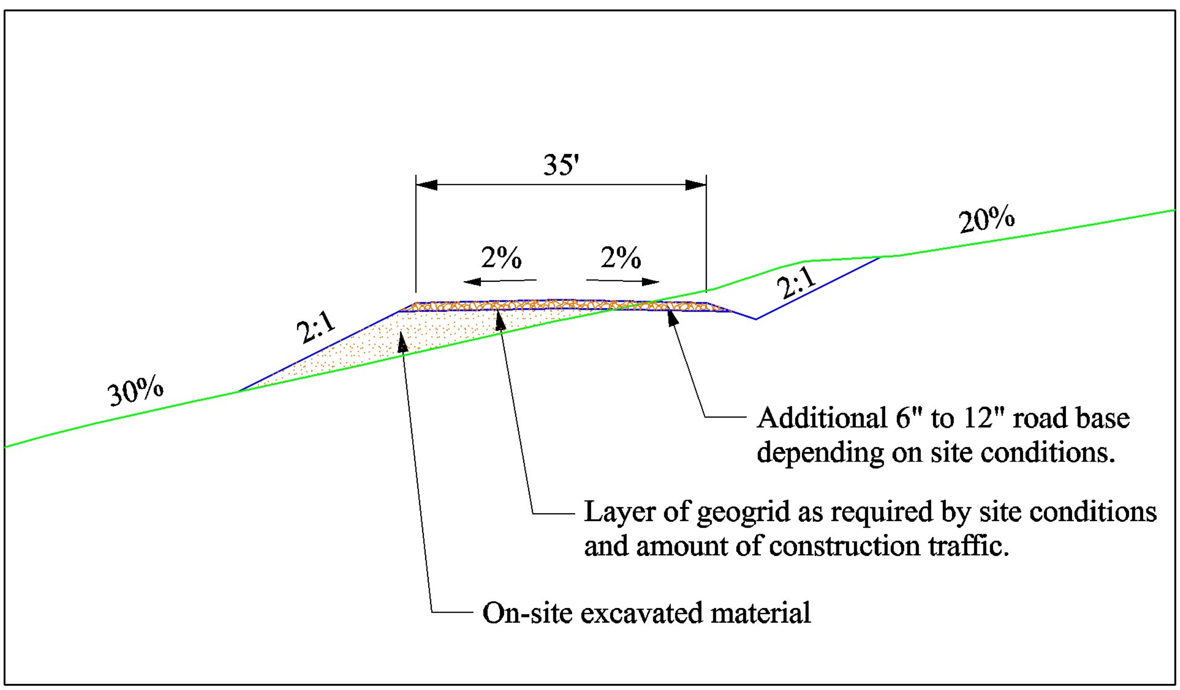


Figure 2.3-5. Typical Cross Section for Project Turbine String Roads.

To help limit the spread and establishment of an invasive species community within disturbed areas, prompt establishment of the desired vegetation would be required. Seeding would occur as soon as possible during the optimal period after construction using certified “weed-free” seed and using native species to the extent possible, in a mix prescribed by the BLM (Appendix C), on all areas to be seeded.

Turbine Pads and Foundations

At each turbine pad, a 185-foot by 180-foot lay down area would be required for off-loading and storage of the three tower sections, nacelle, rotor hub, and blades. In level or near level terrain, this lay down area would not need to be graded or cleared of vegetation. Construction access to this area would be limited to wheeled vehicles. Some crushing of vegetation and soil compaction would be expected to occur. Within this lay down area, a 90-foot diameter area would be cleared of vegetation and graded to facilitate construction of the turbine foundation (Figure 2.3-6).

To allow a large track-mounted crane to access the turbine foundations, a crane pad would be constructed adjacent to the turbine access road. The crane pad would be 40 feet in width and 120 feet in length. It would be constructed using standard cut-and-fill road construction procedures. To allow the crane to safely lift the large and extremely heavy turbine components, the crane pad must be nearly flat. Following construction, the majority of the crane pad would be recontoured and seeded. An eight-foot wide, 120-foot long gravel-surface turbine spur road would be left to allow maintenance vehicles access to the turbine.

The Proposed Project area has rhyolite or basalt rock formations within a few inches, but no more than two feet from the surface where the turbine foundations would be constructed. These rock formations are covered by a few inches to two feet of mineral soil. The quality of the rhyolite or basalt formations is sufficient to allow for the use of a rock socket type foundation (GeoEngineers 2004).

Rock socket foundations for turbines in the 1.5 to 3.0 megawatts (MW) range involve making a roughly circular excavation approximately 16 feet in diameter and 25 to 30 feet deep. Boreholes about three inches in diameter are drilled to a depth of two feet below the foundation depth (i.e., 27 to 32 feet deep). Packets of explosives about the size of soda cans (each containing about 2 pounds of explosive) are lowered into the boreholes (one packet per each foot of depth) and the remaining space is filled with sand. Rock within the excavation area is first fractured by delayed detonation blasting in interior and perimeter bore holes (Figure 2.3-7). The majority of the energy released by the detonation is consumed in fracturing rock within a conical zone a maximum of twice the depth of the foundation (i.e., 48 to 56 feet). The remaining energy is transferred away from the blast in ring waves as elastic vibration in the rock (no permanent deformation of the rock) and air vibration. Rock vibrations should dissipate within less than 200 feet from the foundation site. The fractured rock is subsequently removed from the excavation area (Figure 2.3-8). Blasting would not occur within 200 feet of the two concrete-block structures that house electronic communication equipment located at the summit of Cotterel Mountain. These structures would be evaluated by an engineer pre-blasting and post-blasting to determine if any impact to these structures occurred. If impacts from blasting occur, these structures would be repaired or replaced by the Applicant.

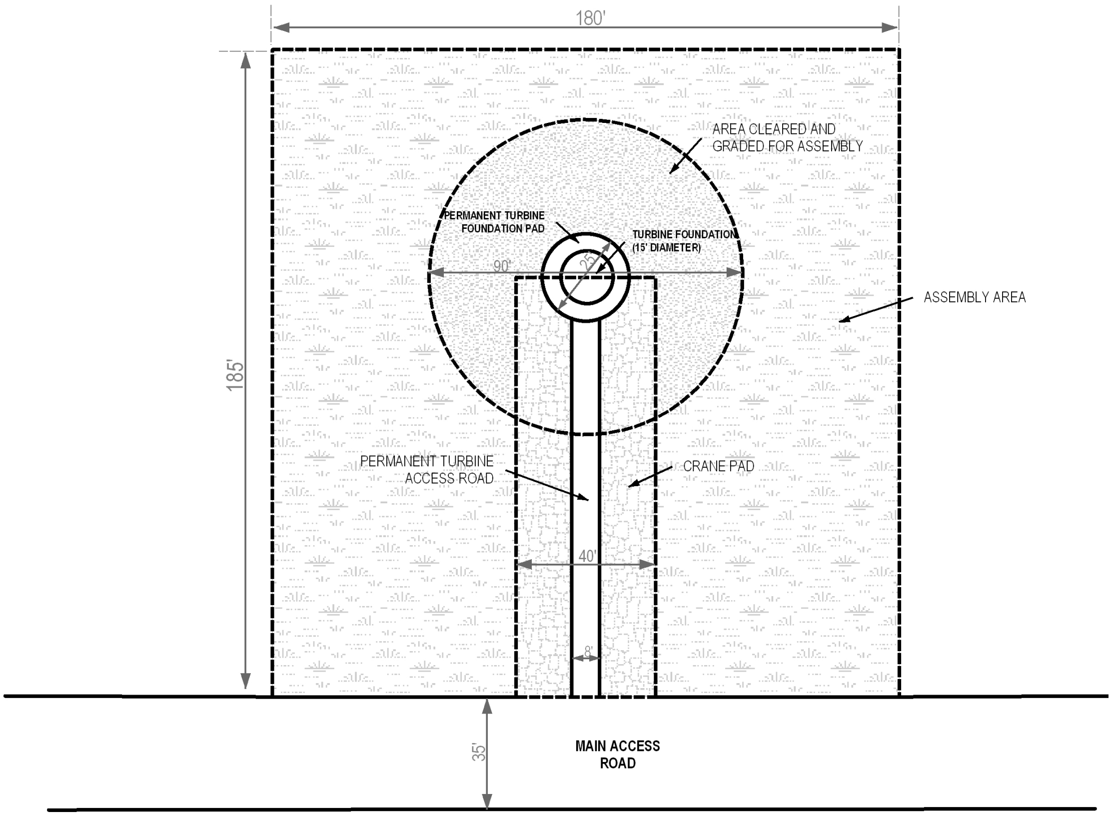


Figure 2.3-6. Typical Turbine Pad Lay-Down and Construction Area.

Two sections of concentric steel conduit forms are lowered into the excavation (Figure 2.3-9). Concrete slurry is pumped between the outside of the larger diameter conduit and the perimeter of the excavation. Spoils from the excavation are used to fill the inside of the smaller diameter conduit. A bolt structure is lowered into the area between the two conduits (Figure 2.3-10) and concreted into place (Figure 2.3-11). The wind turbine tower is connected to the protruding bolts.

To adequately ground the turbines to prevent damage from electrical storms, three-inch diameter 30-foot deep holes may be required for placement of turbine grounding rods as needed. These holes would be located adjacent to the turbine foundations within the 90-foot diameter area that is cleared for foundation construction. Following placement of the grounding rods, the holes would be backfilled and capped with concrete.

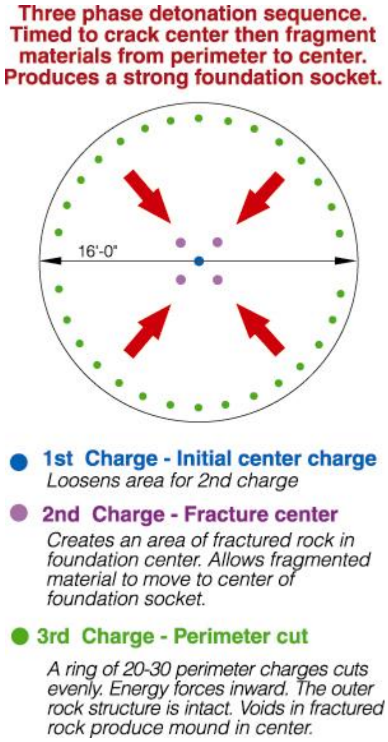


Figure 2.3-7. Detonation Sequence for Tower Foundation Blasting.

Figure 2.3-8. Excavation of Tower Foundation Hole Following Blasting.

Figure 2.3-9. Two Steel Conduit Foundation Forms.

Figure 2.3-10. Bolt Structure for Tower Foundation.

Figure 2.3-11. Foundation Bolts Ready for Concrete Pour.

Tower Erection

Tower erection requires the use of one large track-mounted crane and two small cranes. The large crane would first raise the bottom conical steel tower section vertically, and then lower it over the threaded foundation bolts. The large crane would then raise each additional tower section to be bolted through the attached flanges to the lower tower section. The crane would then raise the nacelle, rotor, and blades to be installed atop the towers. Two smaller wheeled cranes would be used to off-load turbine components from trucks, and to assist in the precise alignment of tower sections.

Underground Communication and Electrical Cables

Trenching equipment would be used to excavate trenches in or near the access road bed to bury the insulated underground cables that would connect each turbine to one of the two project substations. Large conductor cables would be packed in sand within the trenches and covered to protect the cables from damage or possible contact. Optical fiber communication links would be placed in the same trenches as the conductor cables. The depth and number of trenches would be determined by the size of the cable required and the thermal conductivity of the soil or rock surrounding the trench.

Transmission Interconnect Line Construction

Transmission interconnect line construction would use standard industry procedures including: surveying; ROW preparation; materials hauling; structure assembly and erection; ground wire; conductor stringing; cleanup; and restoration. All transmission lines and structures would be designed to prevent the perching of raptors and other birds as outlined in "*Suggested Practices for Raptor Protection on Power Lines-The state of the Art in 1996*" (Olendorff *et al.* 1996). Construction procedures described below would be the same for both transmission line routes.

The overhead 138 kV transmission interconnect lines would be constructed on wooden H-frame structures. The wooden H-frame structure holes would be approximately three feet in diameter and ten feet deep. They would be auger drilled unless consolidated rock is encountered, then, structure holes would be advanced using dynamite. All blasting would be conducted by a permitted contractor, and would be in compliance with state and federal regulations. Structures would be assembled on-site. Aboveground pole height would range from 60 to 65 feet. The disturbed surface area at each structure location would average 50 by 100 feet. Structure erection and conductor stringing would occur sequentially along the ROW.

Existing public and private roads would be used to transport materials and equipment from staging areas to ingress points along the transmission interconnect line ROW using the shortest distance possible. The ROW would be used to access transmission interconnect line construction sites. The interconnect line would require the installation of temporary access routes. The access routes would be 12-feet wide, and is cleared of large boulders to allow high clearance 4 X 4 vehicles to pass. The route would be installed to allow access to support the construction of the interconnect lines. Clearing of vegetation and minor grading may be necessary at some of the transmission interconnect line structures to facilitate their construction. Once construction is complete, the access routes would be used approximately twice a year for inspection and maintenance. Native vegetation would be allowed to re-establish over the routes to the extent that 4-wheel-drive vehicle travel remains practical. Barriers would be placed where the ROW intersects roads to prevent unauthorized traffic onto the transmission line ROW.

Batch Plant

The Proposed Project would require over 9,000 cubic yards of concrete for construction of the wind tower foundations and substations. Depending upon weather conditions, concrete typically needs to be poured within 90 minutes of its mixing with water. Delivery time to pour locations would likely exceed 90 minutes from existing concrete suppliers in the vicinity of the Proposed Project area or from potential off-site staging areas. Therefore, a temporary concrete batch plant would be constructed within the Proposed Project area to facilitate the sub-90 minute delivery time needed.

The concrete batch plant would be located on-site at a central location within an area approximately five acres in size. The batch plant would not be located with ¼ mile of any golden eagle nest, consistent with BMP for wildlife (Appendix D). Vegetation would be cleared and the ground leveled and a one-foot high earth berm or other appropriate erosion control devices, such as silt fences and straw bales, would be installed around the area to contain water runoff. Diversion ditches would be installed as necessary to prevent storm water from running onto the site from surrounding areas. The batch plant would operate during project construction hours for approximately four to five months of the eight month construction period. The batch plant would require a stand-alone generator approximately 250-kilowatt (kW) in size. The generator would draw fuel from an approximately 500-gallon aboveground storage tank with secondary storage for spill prevention. It is estimated that the batch plant would consume from 2,000 to 4,000 gallons of water per day. There would be a 4,000-gallon water tank on-site that would be replenished as needed. The batch plant operation would be permitted by the Idaho Department of Environmental Quality.

Stockpiles of sand and aggregate would be located at the batch plant in a manner that would minimize exposure to wind. Cement would be discharged via screw conveyor directly into an elevated storage silo without outdoor storage. Construction managers and crew would use BMP along with good housekeeping practices to keep the plant, storage, and stockpiles clean, and to minimize the buildup of fine materials. Cement trucks would be cleaned and washed at the batch plant. Cement residue would be washed from the cement delivery trucks into an aboveground settling pond. Cement residue would be collected from the settling pond and trucked off-site for disposal, as needed.

Following completion of construction activities, the Applicant's contractor would rehabilitate the batch plant area. The area would be re-contoured, stockpiled topsoil would be replaced, and the area would be re-seeded with a designated mixture of native grasses, forbs, and shrubs as determined by the BLM.

Portable Rock Crusher

To construct the Proposed Project's roads, a rock crusher would be required to provide appropriately sized aggregate for fill and road base. The rock crusher would have an average capacity of approximately 20,000 tons per day. The crusher would operate during project construction hours for approximately four to five months of the eight-month construction period. In accordance with BMP, the rock crushing area would be sprayed by a water truck to suppress dust. The crusher contains several dust-suppression features including screens and water-spray. Dust-control measures would be operating at all emission points during operation, including start-up and shut-down periods, as required by the Idaho Department of Environmental Quality Air Quality permit.

During construction, water would be needed for dust control, for making concrete and equipment washing. No wells would be drilled or springs developed for the Proposed Project, however the O&M building may need to have a well drilled for domestic use only. All needed water would be transported from an off-site municipal or private source.

Trailer Pad

Contractors constructing the Proposed Project would require on-site mobile trailers to provide for management of and communication to the work force. The mobile trailers would also house a first aid station, emergency shelter, restrooms, and hand-tool storage area for the construction workforce. The trailer pad would be located at the southern end of the center turbine string. Vegetation would be cleared and the ground leveled over an area of about 200 by 500 feet. The ground surface would be graveled to limit dust and mud within the area.

Traffic

Construction of the Proposed Projects roads, facilities, transmission interconnect lines and electrical/communication lines would occur at about the same time, using individual vehicles for multiple tasks. During the construction period, there would be approximately 60 daily round trips by vehicles transporting construction personnel to the site. Over the entire construction period, there would be 2,205 trips of large trucks delivering the turbine components and related equipment to the project. In addition, there would be over 12,000 truck trips by dump trucks, concrete trucks, water trucks, cranes, and other construction and trade vehicles (Table 2.3-1). Once constructed, O&M of the Proposed Project would require three round trips per day using pickups or other light-duty trucks.

A traffic management plan would be prepared for the construction of the project to ensure that no hazards would result from the increased truck traffic and so traffic flow would not be affected on local roads and highways. This plan would incorporate measures such as informational signs, flagmen when equipment may result in blocked throughways, traffic cones and flashing lights to identify any necessary changes in temporary land configuration.

Table 2.3-1. Estimated Vehicle Trips for Construction of the Proposed Project.

Turbine Component Types	Number of Components Required per Turbine	Number of Components per Truck Load	Number of Truck Loads per Turbine
Tower sections	3.0	1.0	3.0
Blades	3.0	2.0	1.5
Nacelle	1.0	1.0	1.0
Rotor hub	1.0	2.0	0.5
Foundation components	2.5	1.0	2.5
Foundation concrete (cubic yards)	70.0	10.0	7.0
Total truck loads/turbine			15.5

Purpose for truck load	Number of Truck Loads
Deliver turbine components (assume 130 turbines)	2,205.0
Road and turbine foundation construction	12,625.0
Crane delivery and removal	40.0
Deliver substation and other electrical components	50.0
Deliver O&M building materials	20.0
Total large truck loads	14,940.0

<u>Project Construction Clean Up</u>

Final cleanup and restoration of the Proposed Project area would occur immediately following construction. Waste materials would be removed from the area and recycled or disposed of at approved facilities. All construction-related waste would be properly handled in accordance with state and federal regulations and permit requirements. The waste would be removed to a permitted disposal facility. This waste may include trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials.

Excess material (soil, rocks, vegetation) developed during the construction of the project would be disposed of at an off-site location. The off-site disposal area would be a private facility licensed to accept such material.

Construction Work Force

Approximately 107 to 132 workers per day would be required for construction of the Proposed Project. The beginning and end of the construction period would involve a slightly lower number of workers when compared to the middle months. The breakdown of the construction workforce by type is shown in Table 2.3-2. Construction of the Proposed Project would be completed over an approximate 8-month period.

Table 2.3-2. Estimated Workforce for the Proposed Project.

Type of Worker	Average Number Required Throughout the Construction Period
Carpenter/form setter	7
Cement finisher	3
Cement, rebar	4
Electrician helper	17
Electrician, industrial	11
Electrician, master	2
Laborer	43
Structural steel worker	9
Backhoe operator	5
Cherry picker operator	7
Cable crane operator	5
Dozer operator	2
Power shovel operator	3
Road roller operator	2
Estimated daily total	120

Twelve employees would work at the Proposed Project on a permanent basis, including one office administrator, one foreman, and ten windsmiths/electricians. Employees would work eight-hour shifts, five days per week, with the exception of five of the windsmiths, who would rotate shifts to cover nights and weekends. The Applicant anticipates that all permanent positions, with the exception of the foreman position, would be filled from qualified personnel from the local labor force. Windsmith training would be provided to those who have a basic understanding of electrical work.

The Applicant would contract with a county or state-approved local sanitation company to provide and maintain appropriate sanitation facilities. During construction, the sanitation facilities would be located at each of the crane assembly areas, the batch plan, the substations, and the trailer pad area, and when necessary additional facilities would be placed at specific construction locations.

2.3.3 Public Access and Safety

Public access to the federal and state lands would not be restricted. However, during construction of specific project features (blasting, tower erection, transmission interconnect line stringing) certain portions of the Proposed Project area would be restricted to the public for safety purposes. Authorized users such as grazing permittees and communication site personnel would continue to have access during the construction period. Following project construction, public access to federal and state lands would be allowed to resume. The substation(s) would be fenced with 12-foot high chain-link fence to prevent public and wildlife access to high voltage equipment. Safety signs would be posted in conformance with applicable state and federal regulations around all towers (where necessary), the substation(s) and on the transformer(s), and other high voltage facilities and along roads. Any existing livestock control fences that would need to be replaced or repaired would conform to BLM Manual Handbook H-1741-1 for the passage of wildlife.

In an effort to prevent damage to livestock and for safety considerations for the construction crews, specific portions of the Proposed Project area may be closed to livestock grazing. If these closures would be necessary, the permittees would be compensated by the Applicant for any costs associated with moving, feeding, or caring for displaced livestock during the construction period for the Proposed Project. In Addition, the Dale Pierce Allotment may be made available to permittees for livestock displaced from Cotterel Mountain during construction of the Proposed Project.

Federal Aviation Administration (FAA) regulations require lighting on structures over 200 feet in height. The turbines proposed under all the action alternatives would be over 210 feet in height and therefore would require appropriate obstruction lighting. However, the FAA may determine that the absence of marking and/or lighting does not threaten aviation. Recommendations on marking and lighting structures vary depending on: terrain; local weather patterns; geographic location, and, in the case of wind farms, the cumulative number of towers and overall site layout. The FAA would review the Proposed Project prior to construction and might recommend that tower markings or aviation safety lighting be installed on all or only a portion of the turbine towers.

Although coordination with the FAA has not yet been initiated, based on the lighting and marking requirements of similar projects and the FAA Obstruction Marking and Lighting Advisory Circular (AC70/7460-1K), a likely adequate lighting setup for the Proposed Project can be determined. It is anticipated that the probable lighting setup would consist of two medium-intensity, flashing white lights operating during the day and twilight, and two flashing red beacons operating during the night. The intensity of the lights would be based on a level of ambient light, with illumination below two foot-candles being normal for the night and illumination of above five foot-candles being the standard for the day. It is anticipated the lights would not be mounted on every turbine. Most likely they would be located on several strategically selected turbines to adequately mark the extent of the facility. The minimum number of required lights would be used in order to minimize attractants for birds during night migrations.

2.3.4 Operations and Maintenance (O&M)

Routine maintenance of the turbines would be necessary to maximize performance and detect potential difficulties. Routine activities would consist primarily of daily travel by windsmiths that would test and maintain the wind facilities. O&M staff would travel in pickup or other light-duty trucks. Most servicing and repair would be performed within the nacelle, without using a crane to remove the turbine from the tower. Occasionally, the use of a crane or equipment transport vehicles may be necessary for cleaning, repairing, adjusting, or replacing the rotors or other components of the turbine. Cranes used for maintenance activities are not as large as the large track-mounted cranes needed to erect the turbine towers. Occasional use of a construction size crane may be required.

Monitoring the operations of the Proposed Project would be conducted from computers located in the base of each turbine tower and from the O&M building using telecommunication links and computer-based monitoring.

Over time, it would be necessary to clean or repaint the blades and towers, and periodically exchange lubricants and hydraulic fluids in the mechanisms of the turbines. All lubricants and hydraulic fluids would be stored, used, and disposed of in accordance with applicable laws and regulations. Any necessary repainting would be performed by licensed contractors in compliance with applicable laws and regulations.

The gearbox would be sealed to prevent lubricant leakage. The gearbox lubricant would be sampled periodically and tested to confirm that it retains adequate lubricating properties. When the lubricants have degraded to the point where they no longer contain the needed lubricating properties, the gearbox would be drained and new lubricant would be added.

Transformers contain oil for heat dissipation. The transformers are sealed and contain no moving parts. The transformer oil would be subject to periodic inspection and does not need replacement.

Construction equipment and O&M vehicles would be properly maintained at all times to minimize leaks of motor oils, hydraulic fluids, and fuels. During construction, refueling and maintaining vehicles that are authorized for highway travel would be performed off-site at an appropriate facility. Construction vehicles that are not highway-authorized would be serviced on the project site by a maintenance crew using a specially designed vehicle maintenance truck. During operation, O&M vehicles would be serviced and fueled at the O&M building or at an off-site location. A Spill Prevention, Containment and Countermeasure Plan would be prepared for the Proposed Project and would contain information regarding training, equipment inspection and maintenance, and refueling for construction vehicles, with an emphasis on preventing spills.

Hazardous Materials

Hazardous materials are those chemicals listed in the Environmental Protection Agency Consolidated List of Chemicals Subject to Reporting under Title III of the Superfund Amendments and Re-authorization Act of 1986. No hazardous or extremely hazardous materials (as defined by 40 CFR;

Section 355) are anticipated to be produced, used, stored, transported, or disposed of as a result of this project.

2.3.5 Reclamation

Reclamation refers to the restoration of lands used temporarily during a construction activity (such as staging areas) to their approximate condition prior to construction. After construction is complete, temporary work areas, trenches, and tower pads would be graded to the approximate original contour, and the area would be re-vegetated with a BLM-approved mixture of native grass, forbs, and shrub species. Reclamation would include implementation of all applicable BLM BMP (Appendix C).

2.3.6 Decommissioning

Decommissioning refers to the dismantling of the project elements and re-vegetating of the site upon completion of the operating life of the facility. While the ROW grant would have a 30-year term, it could be renewed indefinitely. Thus, the anticipated life of the wind plant would be greater than 30 years. Upgrading and replacing equipment can extend the operating life indefinitely, assuming that there would be future demand (after the 30-year term) for the electricity generated by the Proposed Project. Therefore, the estimated life of the project depends primarily on the demand for power, which would be expected to increase for the foreseeable future.

At the end of the useful life of the project, the Applicant would obtain any necessary authorization from the BLM and other appropriate regulatory agencies to decommission the project facilities. Decommissioning would involve removing the turbines, support towers, transformers, substations, and the upper portion of foundations. Generally, wind turbines, electrical components, and towers are either refurbished and resold, or recycled for scrap. All unsalvageable materials would be disposed of at authorized sites in accordance with laws and regulations.

Site reclamation after decommissioning would be based on site-specific requirements and techniques commonly employed at the time the area would be reclaimed. Techniques could include re-grading, spot replacement of topsoil, and revegetation of all disturbed areas with an approved native seed mix. Turbine towers and sub-station foundations would be removed to a depth of six inches below grade. Assuming that the transmission line would not be used for other potential developments, all structures, conductors, and cables would be removed. Abandoned roads would be reclaimed or left in place based on the preference of the BLM at the time of decommissioning. The ROW would then be terminated.

2.3.7 Project Design and Best Management Practices (BMP)

All action alternatives would be subject to BMP (Appendix C). The BMP in Appendix C represent standards from the BLM ROW Handbook (H2801-1). These BMP are designed to guide construction activities and development of facilities to minimize environmental and operational impacts. These include, but are not limited to, standards associated with overall project management, surface disturbance, facilities design, erosion control and revegetation, hazardous materials, project monitoring and responsibilities for environmental inspection. In addition, BMPs specific to wildlife includes fatality monitoring, and a ¼-mile golden eagle nest buffer zone would be required (Appendix D).

An example of these BMP would be standards related to noxious weed control. Based on these standards, the Applicant would be responsible for the control of noxious weeds caused by the activities authorized by the ROW (Appendix C). The Applicant would be required to meet BLM standards in the application of weed control. The Applicant would use integrated noxious weed control management techniques to control the establishment of weeds. Methods of control would include herbicidal, manual, mechanical and biological methods. The actual control method would be based on access, time of year, type of weed species, growth stage of the weed species, wind velocity, affected acreage, etc. All applicable personal protective equipment and clothing would be used in noxious weed control work. All weed control work would be completed in consultation with the Burley BLM noxious weed control specialist and the Cassia County Weed Supervisor.

All noxious weed control efforts would be in accordance with annual NEPA compliance documents, which documents sensitive species and their locations, provides site-specific herbicidal usage rates, and includes plant and animal clearances. These NEPA documents would identify newly established noxious weed species and provide control practices from year to year. It is estimated that actual weed control efforts would not exceed 50 acres per year, although weed control inventory and monitoring may include several thousand acres annually.

Fatality monitoring using methods and protocols that have been used at other operating wind project in the United States would be required for a period of five years commencing at project start up.

2.4 ALTERNATIVE B – PROPOSED ACTION

This alternative is presented as proposed in the ROW application made by the Applicant to the BLM. The Applicant has attempted to reduce potential project impacts through project design, application of BMP (Appendix C), and consideration of input from its own public scoping efforts in developing its proposed action. The BLM has not modified this alternative; it is the Applicant's proposed action.

Background: On March 23, 2001, Windland, Inc. filed a ROW application with the BLM pursuant to Title V of the *Federal Land Policy and Management Act of October 21, 1976* (43 U.S.C. 1761, as amended). The Applicant has petitioned the BLM to grant a ROW for the construction, operation, maintenance and removal of a wind-powered electric generation facility on Cotterel Mountain in Cassia County, Idaho. The application specified the proposed construction of between 210 and 226 Vestas (V-47) 660-kW wind turbines with a nameplate rating for the whole project of between 139 and 150 MW. These turbines require a 165-foot high tower and have a rotor diameter of 154 feet, with a total height to the tip of the blade at its highest point being 242 feet.

When the application was filed, the V-47 was considered a very reliable industry standard and the Applicant was confident that this would be their machine of choice. However, wind turbine technology has changed, with several manufactures building larger machines with nameplate ratings of between 1.3 and 1.8 MW. The V-47 has been replaced by much larger, more efficient turbines; hence, the nature of the original application has changed. Because of the rapid rise in technology, the Applicant now includes an alternate proposal of constructing between 120 and 130 of the larger turbines, thereby, giving the Proposed Action a total generated output or nameplate rating of between 156 and 234 MW. These turbines would require towers between 212 and 262 feet in height and have blade diameters of between 213 and 231 feet, with a total height to the tip of the blade at their highest point being between 319 and 395 feet. Since these machines are so much larger, the spacing requirement between them is much greater, which reduces the number of wind towers.

Today, a commonly used machine in wind power projects is a 1.5 MW turbine. The Applicant's proposed action was modified to construct 130, 1.5 MW turbines with 210-foot tall towers, 230-foot diameter blades, and a total height to the tip of the blades at their highest point of 325 feet. This would be analyzed as Alternative B in this Final EIS. The Applicant's proposal to use the Vestas V-47 is outdated and is mentioned here purely for informational purposes.

Description of Alternative B: Under Alternative B, the Applicant is proposing to construct a wind-powered electric generation facility along the approximately 16-mile ridgeline of Cotterel Mountain. As proposed, the project would consist of approximately 130, 1.5 MW wind turbines that would be sited along the west, central, and east ridges of Cotterel Mountain (Figure 2.4-1). The west string would be 0.8-miles in length and located along the short side-ridge west of the main Cotterel Mountain ridgeline. The center string of wind turbines would be about 10.9 miles in length and placed along the spine of the central ridgeline of the mountain. The east string of wind turbines would be 4.1 miles in length and located along the east ridgeline that extends south of the Cotterel Mountain summit. In addition to the 130 wind turbines, two 138 kV overhead transmission interconnect lines would connect the project to the transmission grid emanating from two separate substations. The exact location of proposed wind turbines, roads, power lines, or other facility-related construction would be sited based on environmental, engineering, meteorological, or permit requirements. Other physical components of the wind plant are described in Table 2.4-1.

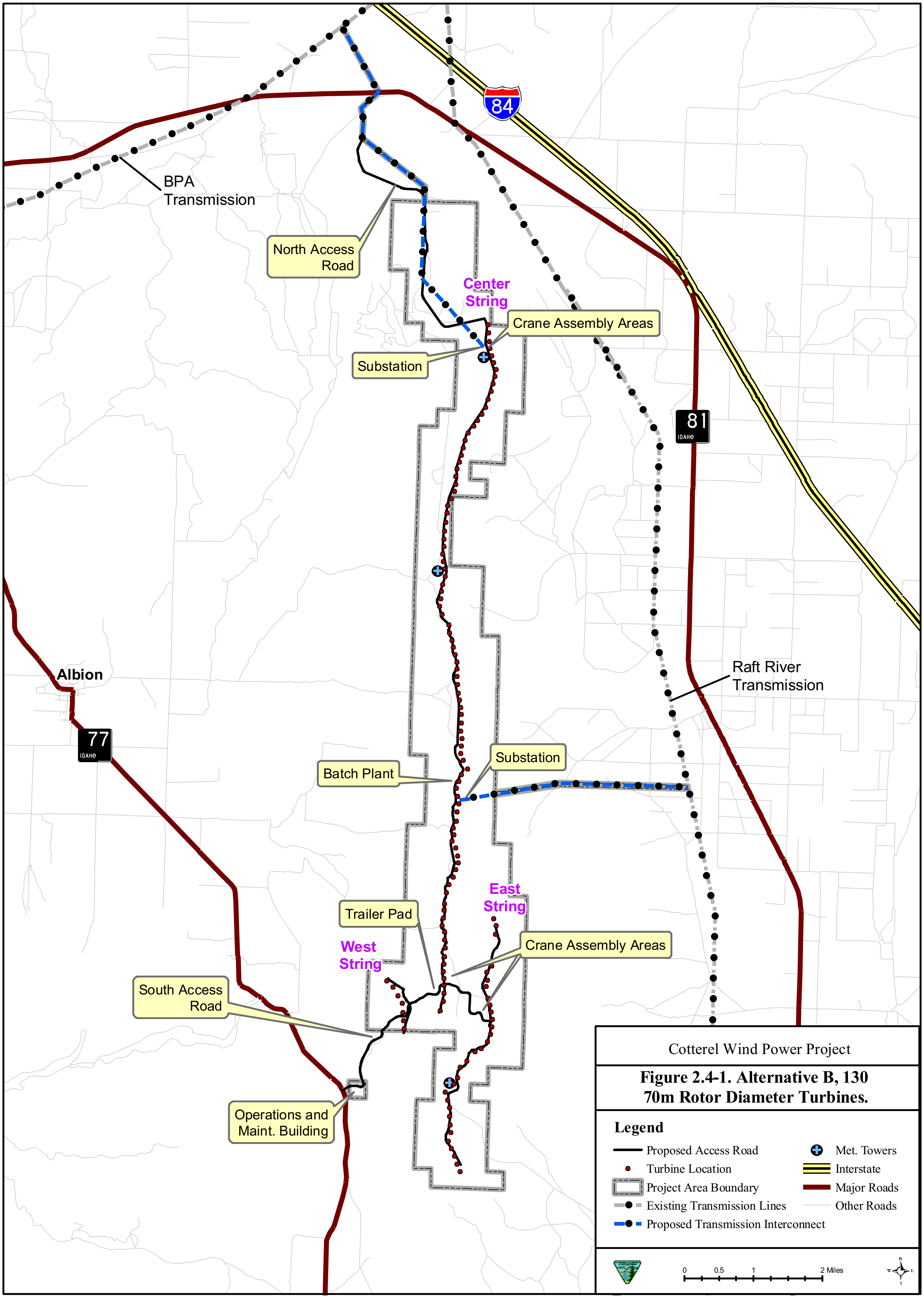


Figure 2.4-1. Alternative B, 130 70m Rotor Diameter Turbines.

Table 2.4-1. Alternative B - Proposed Action Project Features.

Project production capacity (in MW)	**195**
Number of turbines	**130**
Turbine nameplate (each)	1.5 MW
Total length of turbine strings	15.8 miles
Project roads Existing (to be used without modification) Reconstructed New	**26.6 miles (total)** 0 miles 4.5 miles 22.1 miles
Buried electrical distribution lines total	23 miles
Buried electrical distribution lines outside of roadbeds	5 miles
Number meteorological stations	3
Number of substations	2
Number of O&M facilities	1
Overhead transmission interconnect lines	9 miles
Temporary transmission interconnect line access routes	9 miles

2.4.1 General Features of the Wind Power Project Under Alternative B

Wind Turbines

Under Alternative B, each turbine would be 210 feet in height to the center of the hub. Each of the three blades would be 115 feet in length, with an overall diameter of 230 feet. Maximum blade height would be 325 feet above the surrounding landscape (Figure 2.3-1).

Substations

Under Alternative B, there would be two substations. The substations would be located at the north and central portions of the middle turbine string (Figure 2.4-1).

Transmission Interconnect Lines

The substations would connect to the existing Bonneville Power Administration (BPA) and Raft River 138 kV transmission lines via two newly constructed transmission interconnect lines. The two overhead 138 kV transmission interconnect lines would both be constructed on wooden H-frame structures (Figure 2.3-3). The transmission interconnect line ROW would cross lands managed by BLM, the State of Idaho, as well as those under private ownership (Table 2.4-2).

Table 2.4-2. Miles of Transmission Interconnect Line by Ownership for Alternative B.

Management or Ownership	Miles of Transmission Interconnect Line
	Alternative B
BLM	5.7
State of Idaho	2.2
Private	1.1
Total	**9**

The 138 kV transmission interconnect line that connects to the existing BPA line would be 5.7 miles in length. The transmission interconnect line that connects to the existing Raft River Line would be 3.3 miles in length. The transmission interconnect lines would be supported by wooden H-frame structures placed at approximately 800-ft intervals along the ROW. The transmission interconnect line connecting to the BPA line would require about 38 structures; the transmission line connecting to the Raft River line would require about 22 structures.

To construct the transmission interconnect lines approximately 9 miles of temporary transmission line access routes would be required. About 5.7 miles of the access routes would cross lands under BLM management. The remaining 3.3 miles would cross Idaho State Land and lands under private ownership. The access routes would be a 12-foot wide area, which is cleared of large boulders to allow high clearance vehicles to pass. The routes would be installed to allow access to support the construction of the interconnect lines. Clearing of vegetation and minor grading may be necessary at some of the transmission interconnect line structures to facilitate their construction. Once construction is complete, the access routes would be used approximately twice a year for inspection and maintenance of the interconnect line. Native vegetation would be allowed to re-establish over the trails to the extent that 4-wheel-drive vehicle travel remains practical. Barriers would be placed where the ROW intersects roads to prevent unauthorized traffic onto the transmission line ROW.

Roads

Under Alternative B, about 25 miles of all-weather gravel roads would be needed to access and maintain the Proposed Project. The existing Cotterel Mountain north and south access roads would be upgraded and improved for construction and operation of the Proposed Project. The existing road from SH-77 would require an upgrade and partial relocation to reduce maximum grade to ten percent or less, and to increase the inside radius of any turns on the road. This road would be used as primary access for construction crews and smaller materials. From the north end of Cotterel Mountain the existing road from SH-81 would be upgraded to an all-weather gravel road and would be the primary access route for all larger turbine components delivered to the Proposed Project area.

Under Alternative B, the Proposed Project would require about 4.5 miles of road reconstruction, and about 22 miles of new road construction. To allow safe passage of the large transport equipment used in construction, all-weather gravel roads would be built with adequate drainage and compaction to handle 15-ton per axle loads. Passing turnouts would be located every four miles along access roads.

Total estimated cut volume for road construction would be approximately 2,660,000 cubic yards. The estimated fill volume would be approximately 2,500,000 cubic yards. Under Alternative B, the total construction impact area for all project features would be about 365 acres. Following the reclamation of construction impact areas, the final Proposed Project would occupy an area of about 203 acres.

Operations and Maintenance Facility

Under Alternative B the O&M facility would be sited at the south access road east of SH-77 near the Conner Creek Summit. The O&M facility would include a main building with offices, spare parts storage, a domestic well, restrooms, a septic system, a shop area, outdoor parking facilities, a turn-around area for larger vehicles, outdoor lighting and a gated access with partial or full perimeter fencing. The O&M building would have a foundation footprint of about 50 by 100 feet. The projected permanent footprint of the O&M facility (including parking area) would be about two acres. The building would be painted to match the surrounding landscape color and would be landscaped with native species of grasses and shrubs matching those found on-site prior to construction.

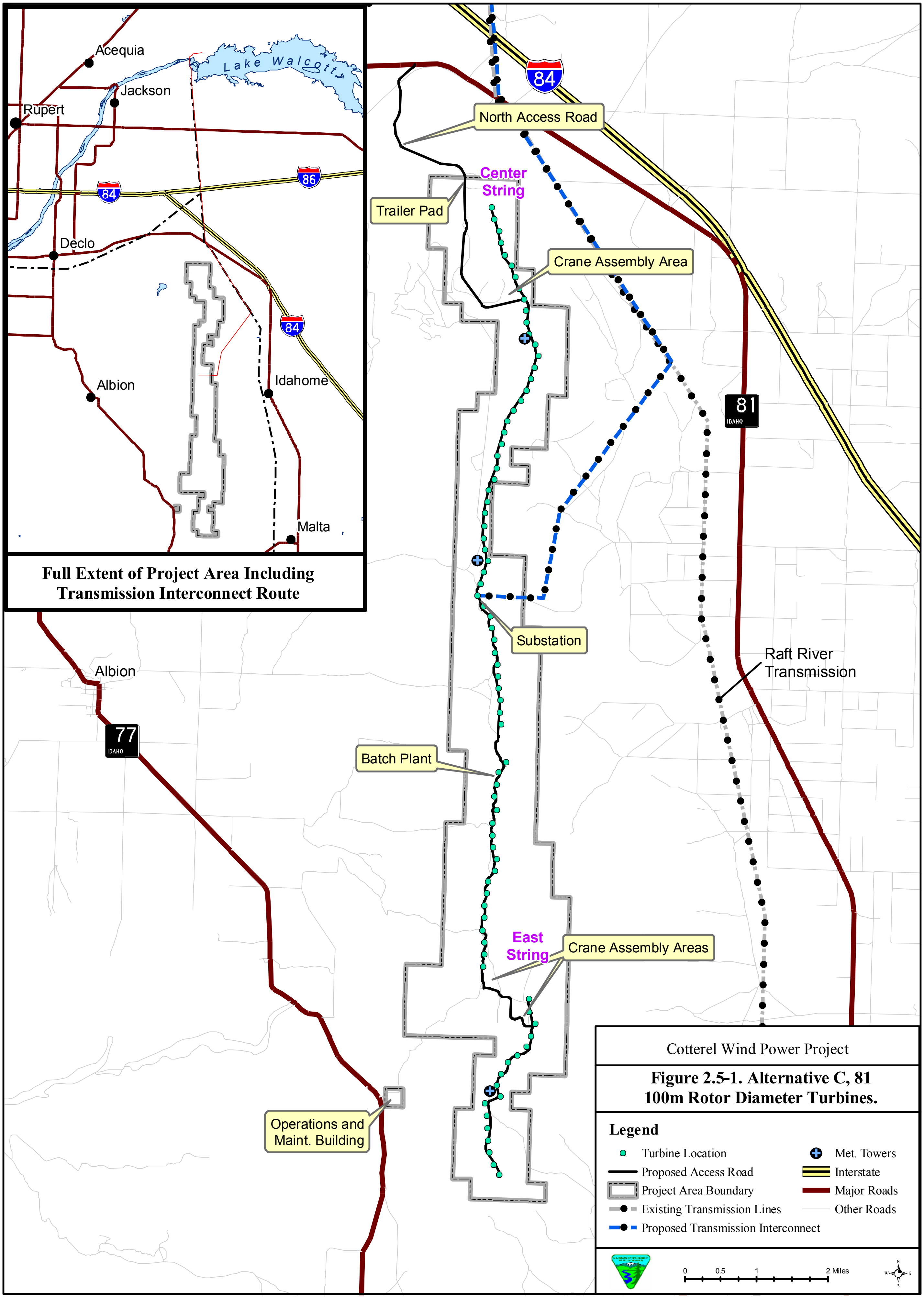
2.5 ALTERNATIVE C – PREFERRED ALTERNATIVE

Background: Alternative C is an alternative to the Proposed Action (Alternative B), that allows for wind energy development and has been developed through the identification of issues raised during public scoping, agency scoping, consultation with the Applicant, government-to-government consultation, from meetings with the Interagency Wind Energy Task Team (IWETT), and from interdisciplinary resource specialist recommendations. In addition to the BMP identified in Appendix C, management practices that would further help to facilitate the sustainability of the existing environment are included in this alternative. The IWETT has identified additional BMP that are included in this alternative to specifically address wildlife issues and concerns related to sage-grouse, raptors, bats and requirements under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Appendix D). Alternative C also incorporates compensatory/off-site mitigation, monitoring and adaptive management plans defined below in Section 2.5.4.

Other changes in Alternative C include not constructing the seven turbines originally proposed for the west turbine string to help reduce the impacts to visual resources (Figures 2.5-1 and 2.5-2). Under Alternative B, the west turbine string and the North Access Road to the north end of the east string ould be the most visible aspects of the Proposed Project from both the Pomerelle Mountain Resort access road and the City of Rocks Back Country Byway (SH-77). In addition, the northern-most four turbines of the east string would not be developed to avoid construction of a highly-visible road cut across the west facing slope below the existing telecommunications facilities.

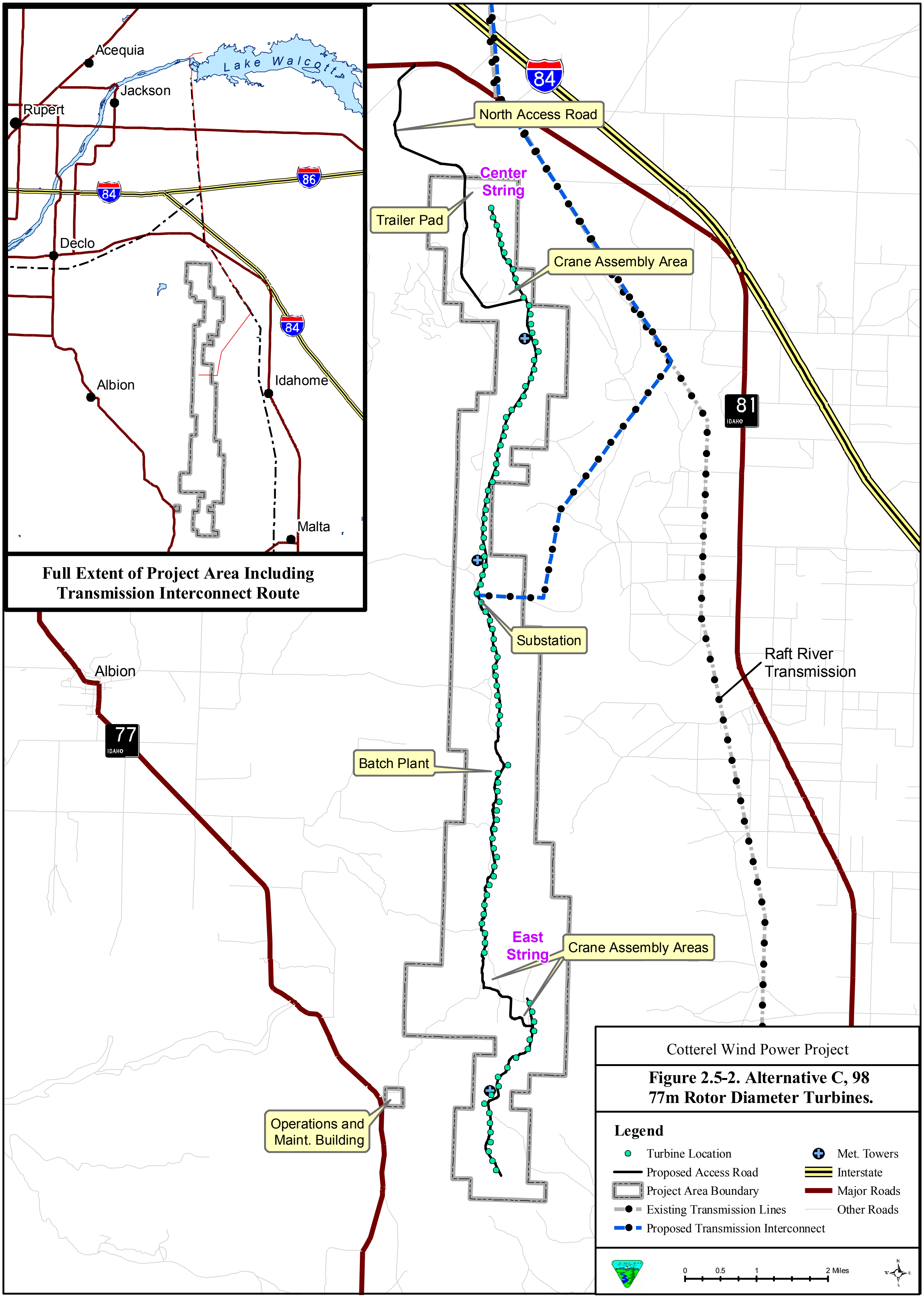
Additionally, the five southern-most turbines of the middle string would not be developed due to limited wind resource in this area based on the results of wind monitoring on Cotterel Mountain. To make up for loss of project output capacity, additional turbines would be added at the north end of the middle string.

Description of Alternative C: Under Alternative C, the Applicant would construct a wind-powered electric generation facility along 14.5 miles of ridgeline of Cotterel Mountain. If built as proposed, the project would consist of approximately 81 to 98 wind turbines, based on the size of turbine selected, sited along the central and east ridges of Cotterel Mountain (Figures 2.5-1 and 2.5-2). The central ridge would have approximately 64 wind turbines and the east ridge would have approximately 17 turbines. In addition to the wind turbines, one 138 kV overhead transmission interconnect line would connect the project to the transmission grid from a single substation. The transmission interconnect line would be 19.7 miles in length. The line would extend north from Cotterel Mountain through Cassia and Minidoka County and cross the Snake River where it would interconnect to transmission grid.



Cotterel Wind Power Project

Figure 2.5-1. Alternative C, 81 100m Rotor Diameter Turbines.



Cotterel Wind Power Project

Figure 2.5-2. Alternative C, 98 77m Rotor Diameter Turbines.

The exact location of proposed wind turbines, roads, and transmission interconnect line(s), or other facility-related construction would be sited based on detailed engineering to address site specific environmental, meteorological, or permit conditions including BMP. Other physical components of the wind plant are described in Table 2.5-1.

Under Alternative C, the final selection of the exact make and model of wind turbine to be used depends on a number of factors, including equipment availability at the time of construction. The number of turbines and the resulting capacity of the project would depend on the type of technology used. Therefore, to capture a "reasonable range" of potential project impacts, Alternative C defines and evaluates a range of turbine sizes and associated facilities, and their potential impact on the environment.

Table 2.5-1. Alternative C Project Features.

Number of turbines	**81 to 98**
Turbine nameplate	1.5 to 3.0 MW
Project nameplate	147 to 243
Total length of turbine strings	14.5 miles
Project roads Existing (to be used without modification) Reconstructed New	**24.4 miles (total)** 1.7 miles 3.2 miles 19.5 miles
Buried electrical distribution lines	18 miles
Electrical trenching (outside of road bed)	3 to 4 miles
Number of substations	1
Number of O&M building	1
New transmission interconnect line	19.7 miles
Temporary transmission interconnect line access routes	4.7 miles
Meteorological towers	3

2.5.1 General Features of the Wind Power Project Under Alternative C

Wind Turbines

Under Alternative C, the Applicant could use a range of turbine sizes from 77-meter (253 feet) rotor diameter up to 100-meter (328 feet) rotor diameter. For analysis purposes, a 77-meter rotor diameter and 100-meter rotor diameter were used.

Under Alternative C, a range of wind turbines would be considered. The smallest in the range would have a 77-meter (230 foot) rotor diameter and would have a generation capacity of 1.5 MW. It would sit on a 65-meter (210 foot) tower and the rotor would consist of three blades, 115 feet in length. Maximum blade height would be 325 feet above the ground. The largest turbine in the range would have a 100-meter (328 foot) rotor diameter and would have a generation capacity of between two and three MW. It would sit on an 80-meter (262 foot) tower and the rotor would consist of three blades, 164 feet in length. Maximum blade height would be 426 feet above the ground.

Regardless of which size of turbine is finally selected for the project, the turbines would generally be installed as indicated on Figures 2.5-1 and 2.5-2. Final adjustments to specific turbine locations would be made to maintain adequate spacing between turbines for optimized energy efficiency and to compensate for local topographic or geologic conditions. The Applicant has indicated that the size and type of turbine used for the project would largely depend on such factors as quality, price, performance and reliability history, power characteristics, guarantees and warranties, and availability of a particular type of wind turbine at the time of construction.

Substations

Under Alternative C there would be only a single substation that would be located approximately midway along the central turbine string.

Transmission Interconnect Lines

Alternative C would have a single overhead 138 kV transmission interconnect line. The transmission interconnect line would extend northeast from the substation down to the Raft River Valley where it would cross over, but not connect to the existing Raft River transmission line. From here the transmission interconnect line would extend to the north approximately 15 miles in a new ROW adjacent to the existing ROW for the Raft River transmission line. It would cross over the Snake River just west and downstream of the Minidoka Dam. The line would then travel in a northeast direction where it would connect the project to the existing Idaho Power transmission lines located north of the Minidoka Dam. The transmission interconnect line ROW would cross lands managed by BLM, Bureau of Reclamation, the State of Idaho, the United States Fish and Wildlife Service (USFWS) as well as those under private ownership (Table 2.5-2).

Table 2.5-2. Miles of Transmission Interconnect Line by Ownership for Alternative C.

Management or Ownership	Miles of Transmission Interconnect Line
	Alternative C
BLM	5.6
Bureau of Reclamation	0.7
State of Idaho	5.5
USFWS	0.2
Private	7.7
Total	**19.7**

The overhead transmission interconnect line from the Proposed Project substation to the Raft River Valley would be supported by 30 wooden H-frame, single circuit structures placed at approximately 800-foot intervals. From the Raft River transmission line to the north, approximately 110 structures would be placed at approximately 800-foot intervals parallel to the existing ROW of the Raft River transmission line. Under Alternative C, the transmission interconnect line would be designed to prevent the perching of raptors and other large birds.

To construct the transmission interconnect lines approximately 4.7 miles of temporary transmission line access routes would be required. About 1.2 miles of the access routes would cross lands under BLM management. The remaining 3.5 miles would cross lands under private ownership. The remaining portion of the transmission interconnect line parallels the existing Raft River Electric transmission line. Construction access for the Proposed Project's interconnect line would be provide from the existing ROW along the Raft River Electric transmission line.

Roads

Under Alternative C, only the existing north Cotterel Mountain access road would be reconstructed and relocated. The south access road would have only minor modifications made to improve safety including, ditch shaping, corner softening, improved sight distance. Under Alternative C, the Proposed Project would require the reconstruction of about 3.2 miles of road and the construction of about 19.5 miles of new roads. Total estimated cut volume for road construction would be approximately 2,200,000 cubic yards. The estimated fill volume would be approximately 2,425,000 cubic yards. Under Alternative C, the total construction impact area for all project features would be about 352 acres. Following the reclamation of construction impact areas, the final Proposed Project would occupy an area of about 205 acres.

Project Access

Under Alternative C, only the north access road off of SH-81 would be reconstructed. The south access road would have minor upgrades made to improve safety but would be mostly unchanged from existing conditions. Turbine components would only be delivered to the Proposed Project area from SH-81 along the north access road. The southern access would be available for ingress and egress from the Proposed Project area for all other construction vehicles.

Since turbine delivery under Alternative C would only occur from the north, trucks delivering turbine components would be required to turn around to travel back out the north access road. Truck turn-around areas would be 210 feet in diameter and would be centered on the access road. Truck turn around areas would be located every four miles along the access road and would be interspersed with pullouts. Therefore, there would be either a truck turn-around or a pullout every two miles along the project roads.

Trailer Pads

Under Alternative C the trailer pad would be located at the north end of Cotterel Mountain. The south access road would not be a primary access. Therefore, the trailer pad would be located adjacent to the north access road to facilitate management and communication with construction vehicles and the construction work force entering and exiting the Proposed Project area.

Operations and maintenance Facility

The O&M facility would be the same as that described under Alternative B.

Meteorological Towers

The meteorological towers would be the same as those described under Alternative B.

2.5.2 Public Access

Under Alternative C, public access on the ridgeline would consist of a combination of new project roads and existing and newly constructed primitive roads (Figure 2.5-3). Although public use of new project roads along the ridgeline would be restricted through a series of gates, signage and natural rock barriers, there would not be a loss of public access to existing use areas. The public would still be able to access Cotterel Mountain by a combination of use of the existing primitive road (jeep trail) system, short sections of newly constructed primitive road, and use of specific sections of new project roads. This system of new project roads and jeep trails would allow existing uses of the area, including hunting, to continue.

2.5.3 Operations and Maintenance (O&M)

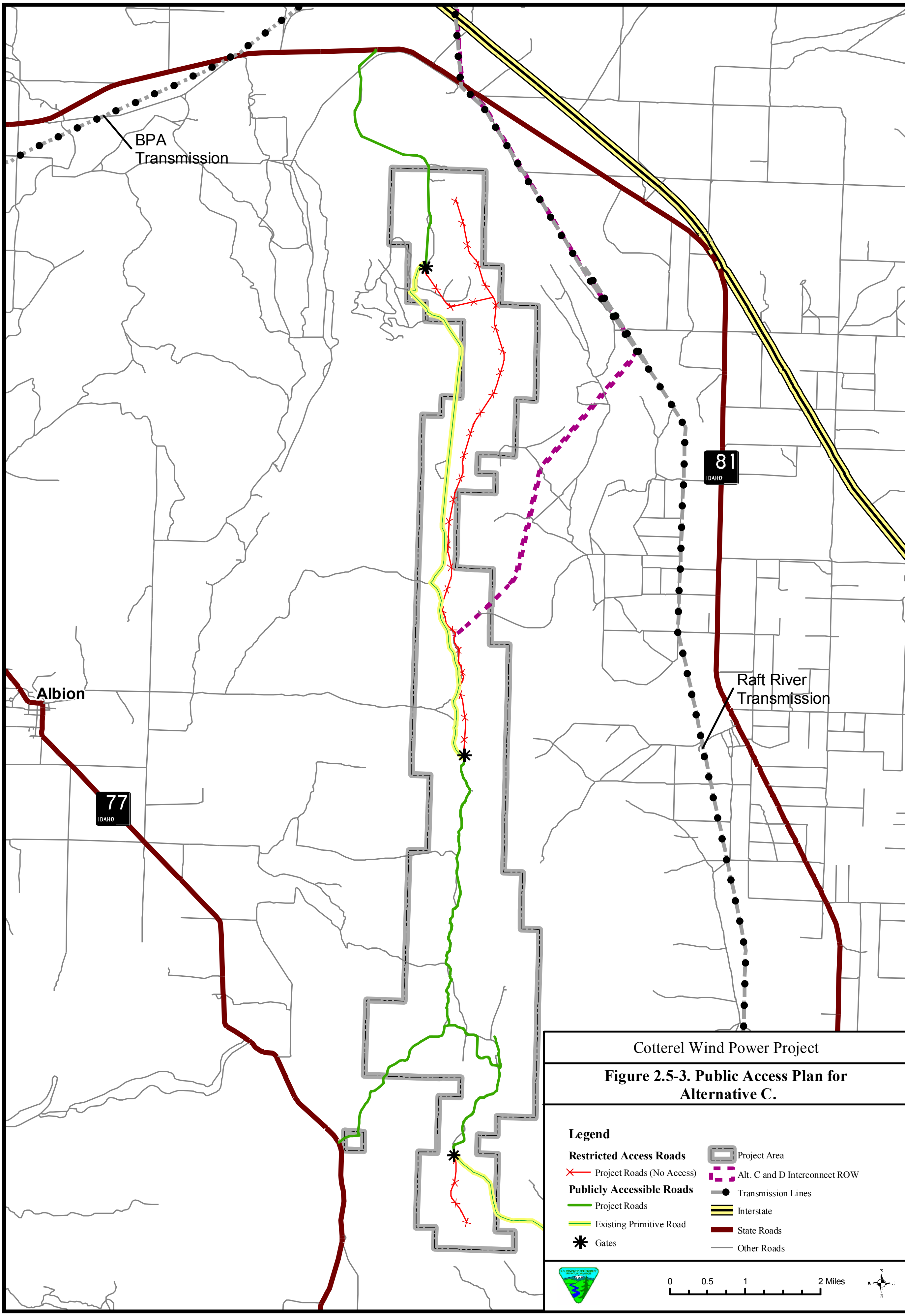
Under Alternative C, access restrictions to the Proposed Project area by O&M personnel may be required to protect leking sage-grouse on a seasonal basis. During the leking season from March 1 through May 1, O&M personnel may be restricted from active sage-grouse lek sites areas from 4 a.m. to 11 a.m. Otherwise, O&M activities for Alternative C would be the same as described under Proposed Project Features Common to All Action Alternatives.

2.5.4 Required On-Site Monitoring, Adaptive Management and Compensatory (Off-Site) Mitigation

The Applicant would be required to complete on-site monitoring as a condition of the ROW grant as described in Section 2.3.7 Project Design and Best Management Practices. This monitoring would include on-site fatality monitoring associated with the operation of the turbines and on-site sage-grouse lek studies as described in Appendix D.

For the purposes of this analysis, on-site is defined as the area granted in the ROW. Off-site is anything outside of that area.

Under Alternative C, additional monitoring is included and is intended to determine the success of the project design, construction and BMP in protecting wildlife. Monitoring would include the required on-site monitoring described above and additional monitoring that was recommended by the IWETT. This additional monitoring would be funded by the Applicant through a compensatory mitigation fund (described below). It could include, but is not limited to, continuing the collection of pre-construction baseline data for use in comparative analysis, off-site sage-grouse lek studies, continuing sage-grouse telemetry studies, sage-grouse nesting studies, sage-grouse winter use studies, and raptor nest surveys.



Cotterel Wind Power Project

Figure 2.5-3. Public Access Plan for Alternative C.

Wind power projects have effects on wildlife, particularly avian species and bats, depending upon the location, geography, and natural setting of the project. Monitoring of the project (5 years or greater) is key in understanding the relationship between the project design, siting of the towers, operation of the facility and effects on wildlife. These effects can occur in a variety of ways but based on data collected at other wind farms, are chiefly associated with bird collisions with the large blades that drive each of the wind turbines (referred to as the rotor swept area of each turbine). Additional long-term monitoring may also be necessary to determine how the characteristics of the project and its turbines affect the behavior and migration of birds and bats and to determine if there are certain turbines along the string that are contributing to bird and bat mortality that would trigger the need to implement management actions to reduce these effects.

On site monitoring of the Proposed Project would be funded by the Applicant for a period of five years. Monitoring would include avian fatality monitoring and sage-grouse lek surveys. Off-site monitoring will be coordinated by the BLM and recommended by the Technical Steering Committee Monitoring on and off-site will receive ongoing review by the BLM and the Technical Steering Committee for needed modification and continuance through out the life the project.

Adaptive management is a relatively new tool designed to improve decisions regarding the planning, design, management and operation of large engineered projects in relationship to their setting. Adaptive management is a highly-valued management concept and iterative process that has been at the core of many inter-agency and intra-agency discussions specific to the development, design and operation of the Proposed Project.

The overall concept of adaptive management has been developed as a management tool over the past two decades through publication in the literature of scientific, engineering and management disciplines, and further refined through dialogue and discussion of the literature at professional meetings. The publications and discussion have included the literature of biological sciences, social sciences, management, manufacturing productivity, economics and engineering.

Adaptive management is based upon a concept of science that understands ecosystems are complex and inherently unpredictable over time. It approaches the uncertainties of ecosystem responses with attempts to structure management actions using a systematic method from which over time learning is a critical tool. Learning and adapting is based on a process of long-term monitoring of impacts to wildlife from this project. The Applicant and the BLM recognize that the findings of long-term monitoring could indicate the need for modification of operations and adaptive management. The BLM and the Applicant will work cooperatively with the USFWS and the Idaho Department of Fish and Game to develop appropriate actions or mitigation measures designed to address issues or concerns identified as a result of monitoring. Adaptive management tools that are available to the Applicant and BLM include, but are not limited to: timing stipulations during construction, operational changes of turbines, siting considerations, lighting scenarios, and color schemes.

The following is a synopsis of important characteristics of adaptive management identified by the Panel on Adaptive Management for Resource Stewardship, National Research Council, National Academy of Sciences, in its 2004 book, titled, Adaptive Management for Water Resources Planning. The Research Council's book consists of a review and analysis of the adaptive management literature of the past 20 years.

- *Management Objectives*. Management is an iterative process -- competing paradigms among cooperating scientists and differences among stakeholders are inherent and unavoidable.
- *Range of Management Choices*. Paradoxically, existing data rarely point to a single best management policy. There are many considerations that go into good management, including knowledge gained over time.
- *Learning*. A mechanism for capturing and incorporating learning into future decisions should be a part of the long-term process.
- *Collaboration*. A collaborative structure should exist to assist in advising and feeding back to project owners and federal managers.
- *Modeling*. Models are helpful and have limits. It is important that everyone understand model assumptions and limits so that model results are not equated with reality.
- *Monitoring*. Monitoring should precede the project, be a part of project design and continue after it is built.

<u>How has Adaptive Management been applied to date to the development of the Proposed Project?</u>

The Cotterel FEIS was preceded by three years of biological monitoring, several years of meteorological monitoring, engineering studies, inter-agency and intra-agency discussions of potential issues and impacts, review of the known scientific literature, review of the histories of other U.S. and foreign wind energy projects, consultation with manufacturers of wind turbines, and consultation with seasoned professionals from many disciplines, including engineering, biology, hydrology, and meteorology.

Discussion of adaptive management was a key subject of the meetings of the IWETT. The discussion of adaptive management and recommendations from IWETT team members resulted in changes and improvements in the FEIS. And, all of the foregoing was carefully considered and adapted into the final recommended project design.

The operation of the Proposed Project would be continuously monitored -- mechanically, electrically, meteorologically, and biologically. Over time information about the operations of the turbines and their relationships to their natural environments would become apparent. As information about the turbines and their relationships to the natural environment become available from monitoring over a meaningful duration of time, then adaptive management can be used to address emerging problems. Here it is important to point out that, especially with regard to adaptive management, the terms 'wind farm', 'wind project', etc, can be misleading.

Each individual wind turbine is a separately controlled and monitored electrical generator. Each turbine occupies a unique air and ground space, or habitat, experiences unique wind and weather, and is exposed to the migrations and flights of different birds and bats at different times. On Cotterel Mountain, turbines are located as far as 15 miles, and as close as ¼ -mile, from one another.

Each turbine is capable of generating 1.5 to 3 MW of electricity. And each, depending on its location and the wind, would average from 35% to 40% of the output over the course of a year (its capacity factor). Depending on the model and manufacturer, each turbine would reach some 325 to 426 feet in height from the ground to the tip of the highest blade, and would have a blade, or rotor diameter of some 230 to 328 feet. In summary, each is an independent generating plant.

Operationally, it is possible that a few of the turbines might be idle in calm air while others are vigorously turning at windy locations along the 15 mile string of turbines. It is through our understanding of the individual behavior of each turbine, by monitoring them over time, that provides the opportunity for adaptive management.

At the large scale of the proposed project, there would be some level of impact on birds and bats, including fatalities. Adaptive management strategies are designed to recognize and respond to severe repetitive and recurring fatality incidents caused by individual turbines, if they occur, by analyzing long term monitoring data, in order to reduce them.

Adaptive management also would be used to monitor the site and respond to the needs of recreation users, hunters, livestock permittees, and of wildlife.

Adaptive management would be a central theme of the Proposed Project design, which is included in the Plan of Development. The Plan of Development and its BMP would be made a part of any future ROW grant holder.

The following are a few examples of how adaptive management would be applied on Cotterel Mountain for the Proposed Cotterel Wind Power Project:

- Adaptive management would be used to refine the final location of the project access and site roads in order to avoid sage-grouse leks and nesting sites, and other sensitive species. The initial design contains only a baseline from which to begin.

- Adaptive management would be used to microsite the final location of each turbine in order to avoid impacts on sage-grouse and golden eagles and their nesting sites. The initial design contains only conceptual baseline locations, not final locations.

- Adaptive management would be used to evaluate the results of long term fatality monitoring in order that the operator can make decisions at the direction of BLM, if necessary, regarding the operation of individual turbines during periods of intense migrations or other hazardous conditions. Although trigger points for operation adjustment could not be established at the initiation of the Proposed Project, analysis of monitoring data could be used over time to determine trends or significant events that would require modification of project operation.

- Adaptive management would be used to respond to the needs of local livestock permittees in order to assure that their livestock are not endangered by construction activities and they have constant access to food and water.

- Adaptive management would be used to respond to local recreational, hunting and other public uses of Cotterel Mountain to assure that multiple uses are continued.

- Adaptive management would be used to continuously monitor the safety of workers and the pubic during construction of the project with a goal of zero injuries or accidents.

The foregoing are but a few examples of the uses of adaptive management on Cotterel Mountain and the Proposed Project. Adaptive management has far more application than this short list.

Adaptive management is one of the newest tools to respond to changes and to improve decisions regarding management of large projects. In summary, adaptive management is, and would continue to be, an important dimension in the planning, development, design, operation and management of the Proposed Project.

BLM Washington Office Policy Guidance Instruction Memorandum No. 2005-069 states that off-site mitigation can be funded by voluntary contributions from the Applicant into a compensatory mitigation fund held by the BLM (Appendix E). This would be done by cooperative agreement between the Applicant and the BLM. This cooperative agreement would prescribe the level of contribution and the management and use of the fund. Accordingly, the Applicant has volunteered to contribute to a compensatory mitigation fund pursuant to the above-mentioned guidance. The Applicant has executed a letter of commitment to enter into a cooperative agreement (Appendix F). The Applicant intends the annual contribution to be in an amount equal to approximately one-half of one percent of the gross revenues received from Cotterel Wind Power Project electricity sales. For a 200 megawatt project on Cotterel Mountain, that contribution is expected to average approximately $150,000 per year at today's forecasted production and electricity rates.

An extensive framework of off-site mitigation practices was also recommended by the IWETT to address impacts to wildlife, should they occur as a result of the Proposed Project. These practices would also be funded by the compensatory mitigation fund. The kinds of off-site mitigation practices recommended include, but are not limited to: purchase of key habitats; acquisition of conservation easements on key habitats; or, restoration, treatment or conversion of existing federally managed off-site habitats. Any off-site activities proposed by the steering committee would have impacts associated, which would be separate from the impacts identified for this Proposed Project and analyzed in this document. They would be analyzed in separate NEPA documents on a case-by-case basis as needed.

It was further recommended by the IWETT that a technical steering committee would be formed to advise on the design of mitigation measures and monitoring covered by the compensatory mitigation fund. This committee would be responsible for recommending actions that would be funded by the compensatory mitigation fund (i.e. implementation of monitoring over and above that which is required, recommending commensurate off-site mitigation, and recommending adaptive management strategies). The intent is to ensure interagency involvement in mitigation and monitoring activities relating to migratory birds, bald and golden eagles and sage-grouse with particular emphasis on addressing the requirements of the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act and sage-grouse conservation. The committee will also examine ongoing research and scientific studies attempting to understand the behavior and relationship between wildlife and wind energy developments. The technical steering committee would be an expansion of the IWETT and would consist of interagency wildlife and other resource professionals and the Applicant, with final decision authority resting with the BLM Field Office Manager. This committee would be formed and chartered prior to any construction of the Proposed Project.

The Technical Steering Committee may include but not be limited to: Wildlife Biologists, Ecologists, Resource Managers, Scientists and Engineers, representing BLM, the Applicant, IDF&G, USFWS, IDL, NRCS, BPA, Idaho Power, the Local Sage Grouse Working Group, Local Ranchers and Tribes. The Technical Steering Committee will be responsible for assisting BLM and the Applicant in several important scientific and technical areas including but are not limited to:

- Designing a long-term monitoring regime for post construction wind turbine operations.
- Evaluating impacts of the proposed project to wildlife, including sage grouse and raptors through scientific, statistically-sound analysis and interpretation of the long-term monitoring data.
- Determine the best use for funds provided under the voluntary compensatory mitigation.

Specific protocols for long-term monitoring would be contained in the Plan of Development (POD) for the proposed project. The protocols would outline a decision mechanisms for individual turbine operations in the event of severe fatality events during migrations, storms, or other unforeseen events. The protocols would also identify the conditions for advising the operator of the project to shut down an individual turbine, or turbines, in order to reduce fatalities of avian species.

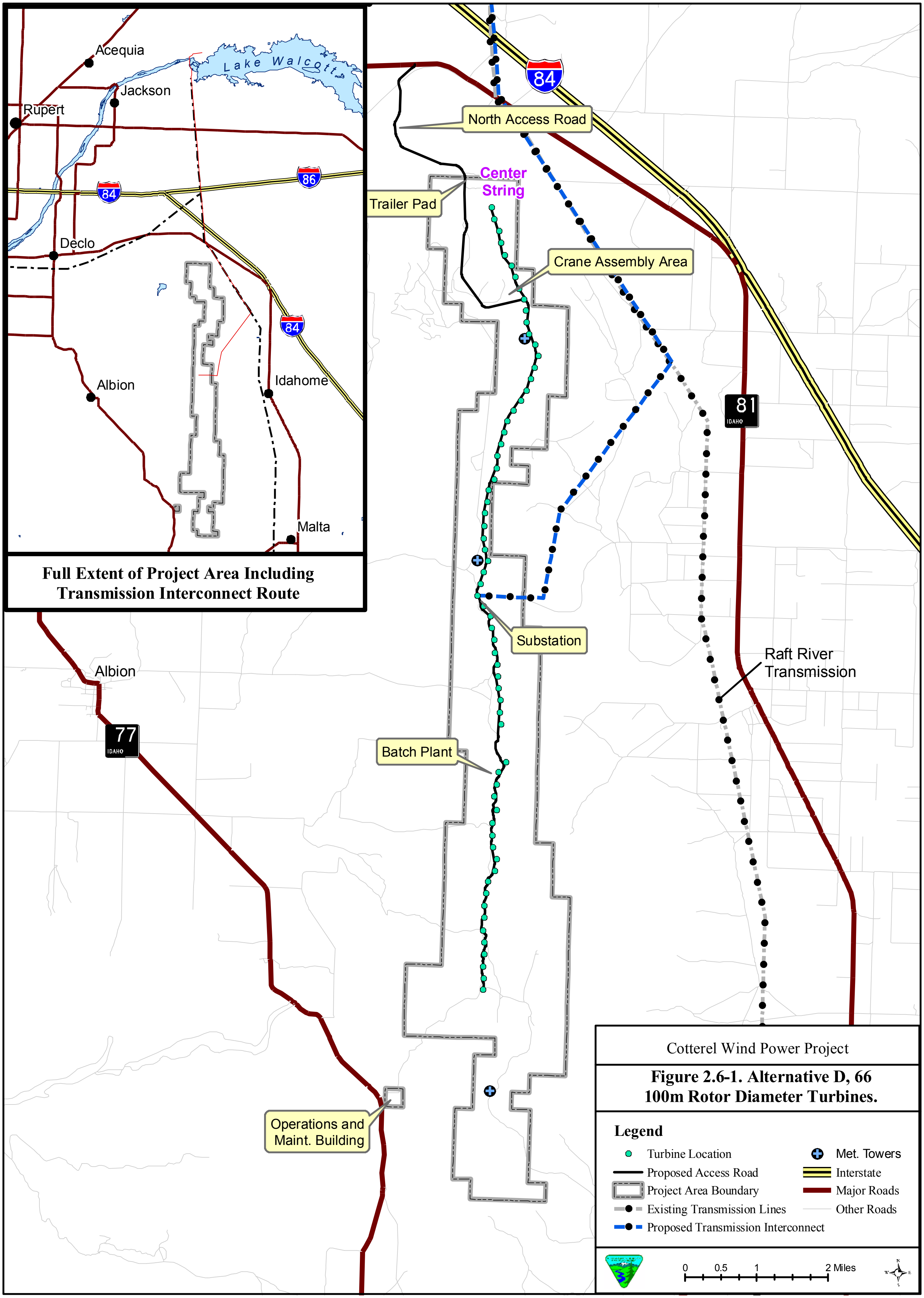
2.6 ALTERNATIVE D

Background: Alternative D is an alternative to the Proposed Action (Alternative B), that allows for wind energy development and has been developed through the identification of issues raised during public scoping, agency scoping, consultation with the Applicant, the IWETT process, government-to-government consultation, and from interdisciplinary resource specialist recommendations. In addition to the BMP identified in Appendix C, management practices that would further help to facilitate the sustainability of the existing environment are included under Alternative D. The IWETT has identified additional BMP that are included in this alternative to specifically address wildlife issues and concerns related to sage-grouse, raptors, bats and requirements under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Appendix D). Alternative D also incorporates compensatory/off-site mitigation, monitoring and adaptive management plans defined above in Section 2.5.4.

The premise of Alternative D is elimination of turbines from a portion of the sage-grouse habitat (leking, nesting, brood rearing, and winter range) while still maintaining an economically viable project. Because of the infrastructure costs involved with the project (i.e. turbines, roads, power lines, substation), the Applicant has determined that 66 turbines in the 1.5 MW or larger size range would be necessary for an economically viable project. Concentrating the turbines along the center ridge of Cotterel Mountain would be the best way to obtain this number of turbines while affecting the fewest resources. In addition, it would concentrate the project features on the central ridge, leaving the east ridge undeveloped.

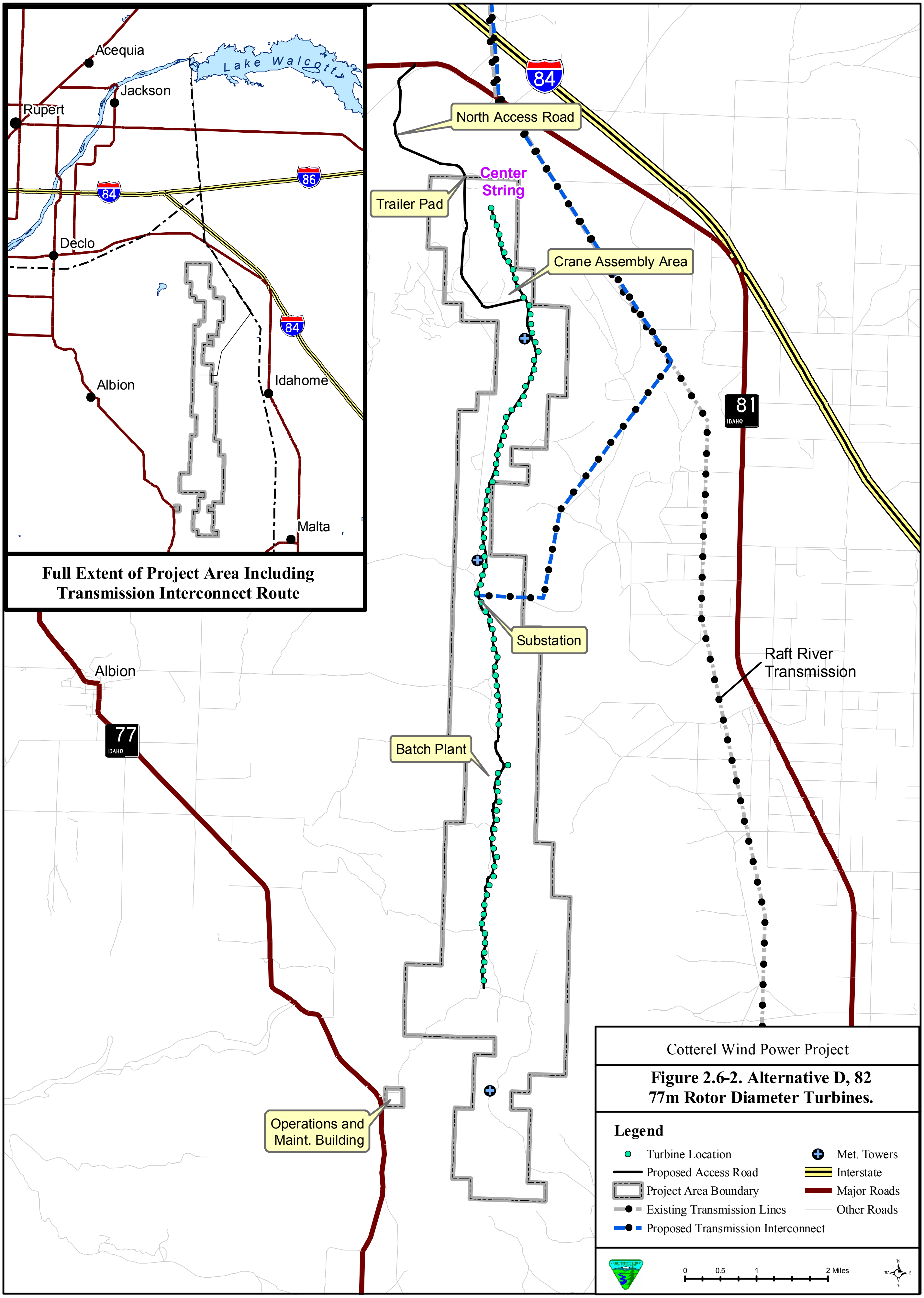
Description of Alternative D: Alternative D would use the same size range and types of wind turbines as those proposed under Alternative C. Under Alternative D, a range of 66 to 82 turbines would range in generation capacity from 1.5 to 3.0 MW (Figure 2.6-1 and Figure 2.6-2). Tower height for the turbines would range from 210 feet to 262 feet, with maximum blade height ranging from 325 to 426 feet above the surrounding landscape. Rotor diameters would range from 230 feet to 328 feet (77 to 100 meters; Table 2.6-1). In addition to the wind turbines, one 138 kV overhead transmission interconnect line would connect the project to the transmission grid from a single substation. The transmission interconnect line would be 19.7 miles in length. The line would extend north from Cotterel Mountain through Cassia and Minidoka County and cross the Snake River where it would interconnect to transmission grid.

In Alternative D, as under Alternative C, the final selection of the exact make and model of wind turbine to be used depends on a number of factors, including equipment availability at the time of construction. The number of turbines and the resulting capacity of the project would depend on the type of technology used. Therefore, to capture a “reasonable range” of potential project impacts, Alternative D defines and evaluates a range of turbine sizes and associated facilities, and their potential impact on the environment.



Cotterel Wind Power Project

Figure 2.6-1. Alternative D, 66 100m Rotor Diameter Turbines.



Cotterel Wind Power Project

Figure 2.6-2. Alternative D, 82 77m Rotor Diameter Turbines.

Table 2.6-1. Alternative D Project Features.

Number of turbines	**66 to 82**
Turbine nameplate	1.5 to 3.0 MW
Project nameplate	123 to 198
Total length of turbine strings	11.6 miles
Project roads Existing (to be used without modification) Reconstructed New	**19.3 miles (total)** 1.7 miles 2.9 miles 14.7 miles
Buried electrical distribution lines	14 miles
Electrical trenching (outside of road bed)	3 miles
Number of substations	1
Number of O&M buildings	1
New transmission line	19.7 miles
Temporary transmission interconnect line access routes	4.7 miles
Meteorological towers	3

2.6.1 General Features of the Wind Power Project Under Alternative D

Wind Turbines

Wind turbines would be the same for Alternative D as described under Alternative C.

Substations

Substations would be the same for Alternative D as described under Alternative C.

Transmission Interconnect Lines

The transmission interconnect lines would be the same for Alternative D as described under Alternative C.

Roads

Under Alternative D only the existing north Cotterel Mountain Access road would be reconstructed and relocated. The south access road would have only minor modifications to improve safety, including: ditch shaping, corner softening, improved sight distance. Under this Alternative, the Proposed Project would require the reconstruction of about 2.9 miles of road and the construction of about 14.5 miles of new roads. Total estimated cut volume for road construction would be approximately 2,080,000 cubic yards. The estimated fill volume would be approximately 2,275,000 cubic yards. The total construction impact area would be about 282 acres. Following the reclamation of construction impact areas, the final Proposed Project would occupy an area of about 160 acres.

Access

Access for construction of the Proposed Project would be the same for Alternative D as described under Alternative C.

Trailer Pads

Trailer pads would be the same for Alternative D as described for Alternative C.

2.6.2 Public Access and Safety

Public access under Alternative D would be similar to Alternative C along the central ridgeline and turbine string. However, under Alternative D there would be no road construction or turbines sited along Cotterel Mountain's east ridge. The lower portion of the existing Cotterel Mountain summit road would have minor modifications made to improve safety. The existing Cotterel Mountain summit access road and primitive jeep trails along the east ridgeline would remain unchanged and would continue to be open to the public.

2.6.3 Operations and Maintenance (O&M)

Under Alternative D, access restrictions to the Proposed Project area by O&M personnel may be required to protect leking sage-grouse on a seasonal basis. During the leking season from March 1 through May 1, O&M personnel may be restricted from active sage-grouse lek sites areas from 4 a.m. to 11 a.m. Otherwise, O&M activities for Alternative D would be the same as described under Proposed Project Features Common to All Action Alternatives.

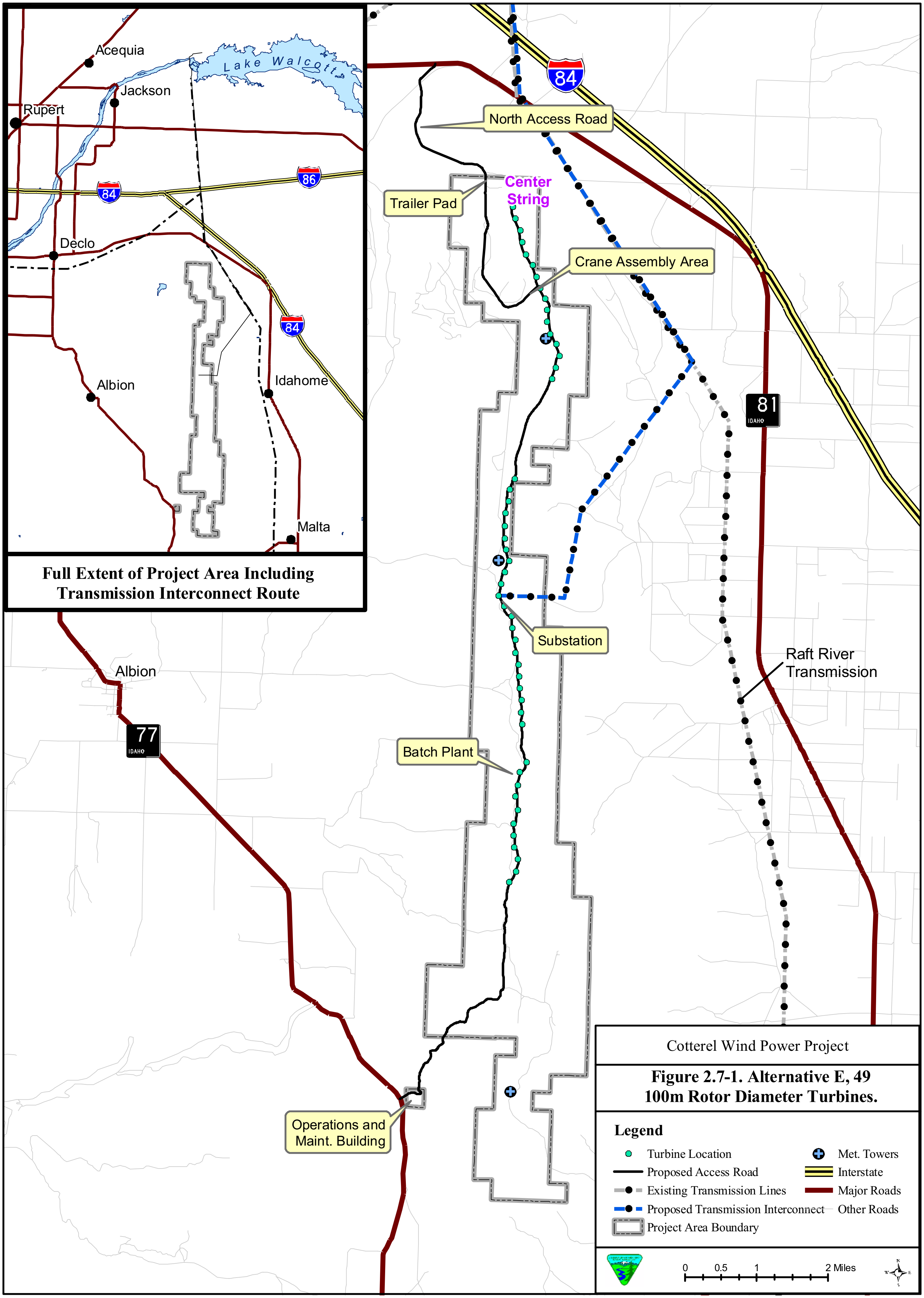
2.6.4 Required On-Site Monitoring, Adaptive Management and Compensatory (Off-Site) Mitigation

Required on-site monitoring, adaptive management and compensatory (off-site) mitigation would be the same for Alternative D as described under Alternative C.

2.7 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

2.7.1 Alternative E

Alternative E was developed by the identification of issues through public scoping, agency scoping, the IWETT, government-to-government consultation, and interdisciplinary resource recommendations and is basically a modification of Alternative D (Figure 2.7-1). It was proposed as a possible method of further minimizing potential impacts to sage-grouse habitat and habitat use while maintaining an economically viable wind energy development. Alternative E, while avoiding the most direct suspected impacts to sage-grouse lek use and associated nesting at several key locations on the mountain, would effectively reduce the length of the turbine string to approximately 8.4 miles and reduce the number of turbines that could be constructed to a range of 40 to 49. This is substantially less than the minimum number of wind turbines disclosed by the Applicant as being economically viable to construct (66 turbines), operate and maintain at the Cotterel Mountain site.



Acequia
Lake Walcott
Jackson
Rupert
84
86
Declo
84
Albion
Idahome
Malta
Full Extent of Project Area Including
Transmission Interconnect Route
84
North Access Road
Center
String
Trailer Pad
Crane Assembly Area
81
IDAHO
Substation
Raft River
Transmission
Albion
77
IDAHO
Batch Plant
Operations and
Maint. Building
Cotterel Wind Power Project
Figure 2.7-1. Alternative E, 49
100m Rotor Diameter Turbines.
Legend
Turbine Location
Met. Towers
Proposed Access Road
Interstate
Existing Transmission Lines
Major Roads
Proposed Transmission Interconnect
Other Roads
Project Area Boundary
0
0.5
1
2 Miles

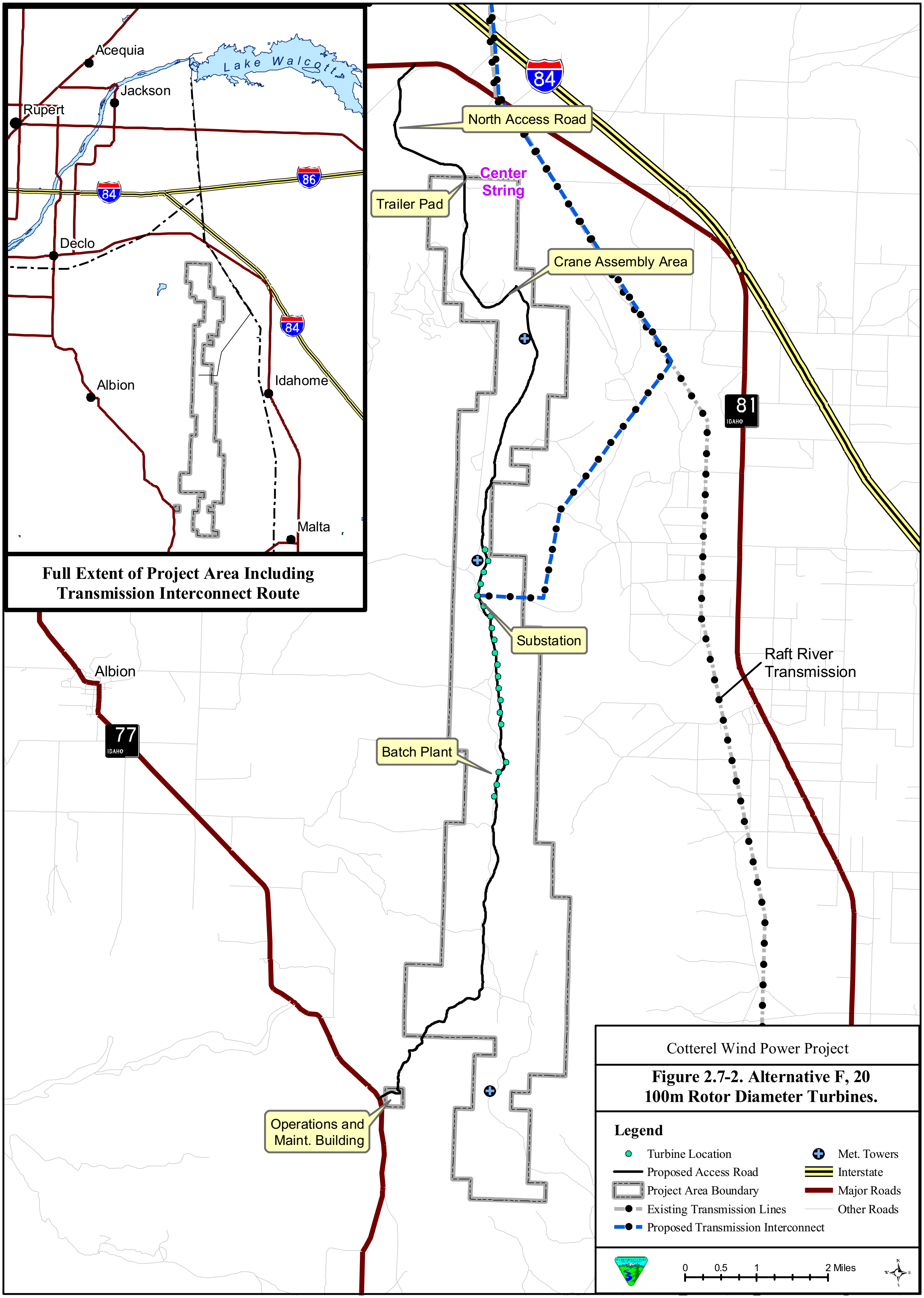
CEQ regulations at 40 CFR 1502.14 require an EIS to analyze all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than whether the Applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the Applicant (CEQ 40 Most Asked Questions 1981).

The Applicant's analysis and disclosure of a minimum size project is based on the cost of infrastructure (i.e. roads, substation, power transmission, underground cabling, etc.), the cost of construction on a remote, isolated mountaintop, the cost of monitoring and mitigation, and the cost and time required for permitting on public land. It is further based on the time required to amortize the capital investment of a project. Alternative E would have essentially the same infrastructure costs as Alternative D with approximately 60 percent of the production potential. Accordingly, the Applicant states that it is not possible to recoup costs in a reasonable amount of time or achieve the rate of return necessary for such a large investment, nor would it be possible to obtain financing on acceptable terms. While Alternative E is technically feasible and could be constructed, it does not meet the CEQ test of a reasonable alternative since it is not economically viable. Therefore, Alternative E does not meet the purpose and need stated in this document. For these reasons, Alternative E is not carried forward or analyzed in detail. It should be noted that in CEQ's definition of "reasonable," technical and economic are linked. If a Proposed Action does not meet one or the other, it is not feasible to construct and therefore is not a reasonable alternative.

The casual observer may notice a number of small wind farms cropping up around southern Idaho. This begs the question, why are 40 turbines not economically feasible on Cotterel Mountain while one, three or seven turbines seem to be a viable project in other areas? As stated above, the answer is closely tied to: infrastructure costs; construction costs; monitoring and mitigation costs; the high costs and lengthy time requirements of siting on public land versus the low cost and short time frames involved with siting on private land; and the capital investment amortization time and costs. It should be noted that, with the exception of time to amortize the capital investments, these smaller projects located on private land do not experience these other costs.

2.7.2 Alternative F

Alternative F was developed by the identification of issues through public scoping, agency scoping, the IWETT, government-to-government consultation, and interdisciplinary resource recommendations. This alternative further distances the wind energy facilities from sage-grouse use areas. Under Alternative F, the Applicant would construct a wind-powered electric generation facility along approximately 3.6 miles of ridgeline on Cotterel Mountain. If built as proposed under Alternative F, the project would consist of approximately 20 wind turbines, sited along the central ridge of Cotterel Mountain. Power transmission and substation involvement would be the same as for Alternatives C, D, and E (Figure 2.7-2).


Acequia
Lake Walcott
Jackson
Rupert
84
86
Declo
84
Albion
Idahome
Malta
Full Extent of Project Area Including
Transmission Interconnect Route
84
North Access Road
Center
String
Trailer Pad
Crane Assembly Area
81
IDAHO
Substation
Raft River
Transmission
Albion
77
IDAHO
Batch Plant
Operations and
Maint. Building
Cotterel Wind Power Project
Figure 2.7-2. Alternative F, 20
100m Rotor Diameter Turbines.
Legend
Turbine Location
Proposed Access Road
Project Area Boundary
Existing Transmission Lines
Proposed Transmission Interconnect
Met. Towers
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

The premise of Alternative F is to site the wind turbines based on the best available science, combined with professional judgment, for the protection of sage-grouse and their habitat. Studies regarding the lifecycle of sage-grouse have shown that nesting and brood rearing generally take place within a 1.8-mile radius of active leks (Connelly *et al.* 2000). There is also some scientific information on lesser prairie chickens to suggest that they may avoid tall structures (Robel *et al.* 2004). Therefore, it has been suggested by some that placement of a wind power project within that 1.8-mile radius of leks may have an adverse affect on the lifecycle activities of sage-grouse.

Application of a 1.8-mile no development zone around known, active sage-grouse leks would limit the siting of the wind generation facility to the 3.6-mile section of the central Cotterel Mountain ridgeline and reduce the number of constructible turbines to approximately 20. This requirement would render Alternative F not economically feasible, for the same reasons as described above under Alternative E, as a commercial wind generation facility and not in accordance with the purpose and need stated in this document. Therefore, Alternative F has been considered but is not being analyzed in detail.

2.8 COMPARISON OF ALTERNATIVES

Table 2.8-1 provides a comparison of the alternatives by Proposed Project features. Table 2.8-2 provides a summary of acres of permanent and temporary impacts by project feature. Table 2.8-3 provides a summary of potential resource impacts for Alternative A, Alternative B, Alternative C, and Alternative D. These numbers are for analysis purposes only.

Table 2.8-1. Comparison of Project Features of the Action Alternatives.

Project Features	Alt. B	Alt. C	Alt. D
Project nameplate (in MW)	195	147 to 243	123 to 198
Number of turbines	130	81 to 98	66 to 82
Turbine nameplate (in MW)	1.5 MW	1.5 to 3 MW	1.5 to 3 MW
Turbine hub height (meters)	64	80	80
Turbine diameter (in meters)	70	77 to 100	77 to 100
Total length of turbine string (in miles)	15.8	14.5	11.6
Project roads total (in miles)	26.6	24.4	19.3
Existing (to be used without modification)	0	1.7	1.7
Reconstructed	4.5	3.2	2.9
New	22.1	19.5	14.7
Electrical trenching (outside of roads, in miles)	5	3 to 4	2.8
New transmission Interconnect lines (in miles)	9	19.7	19.7
Substations	2	1	1
Meteorological towers	3	3	3
Maintenance and operation building	1	1	1
Temporary ground disturbance (in acres)	365	350	280
Permanent ground disturbance (in acres)	203	203	158

Table 2.8-1. Comparison of Project Features of the Action Alternatives.

Project Features		Alt. B	Alt. C	Alt. D
Construction features				
Earth work	Cut (in cubic yards)	2,663,496	2,203,176	2,079,286
	Fill	2,506,995	2,423,935	2,275,735
	Difference	+156,501	-220,759	-196,449
Truck trips to build project roads (road base only)		12,625	10,885	8,500
Truck trips to build project (turbines, substations, other)		2,050	1,850	1,250
Total truck trips		14,675	12,735	9,750
Number of batch plants		1	1	1
Mitigation				
Wildlife fatality monitoring		X	X	X
BLM BMP			X	X
Compensatory/off-site mitigation			X	X
Public Access Available		X	X	X

Table 2.8-2. Acreage of Land That Would Be Affected by Development of the Proposed Cotterel Wind Power Project.

	Temporary Construction Disturbance (approx. acres)*			Permanent Construction Disturbance (approx. acres)		
	Alt. B	**Alt. C**	**Alt. D**	**Alt. B**	**Alt. C**	**Alt. D**
Turbine pads	95	59 to 72	48 to 60	0.8	0.6	0.5
New project roads	50	48	40	200	202	157
O & M facility	0	0	0	2	2	2
Temporary equipment storage and construction staging**	10	8	4	0	0	0
Power line ROW	7	14	14	0	0	0
Substation	0	0	0	0.5	0.3	0.3
Batch plant	5	5	5	0	0	0
Meteorological towers	0	0	0	0.014	0.014	0.014
Total	167	134 to 147	111 to 123	202	205	159

*Temporary construction impacts are in addition to permanent impacts.

**Includes temporary office trailers and crane assembly areas.

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
PHYSICAL				
Air Quality	No impact	Criteria pollutants and greenhouse gases would temporarily be emitted during construction of the Proposed Project	Impact to climate or air quality would be similar to those described under Alternative B; however, the temporary effects would be slightly less due to less construction	Impact to climate or air quality for Alterative D would be similar those described under Alternatives B and C; however, the temporary effects to air quality would be the least under Alternative D
Geologic Hazards	There would be no impact related to geology.	Shallow blasting to set wind turbine foundations and for road construction up to 203 acres disturbed	Shallow blasting to set wind turbine foundations and for road construction up to 203 acres disturbed	Shallow blasting to set wind turbine foundations and for road construction up to 158 acres disturbed
Paleontological Resources	No impact	No impact	No impact	No impact
Soils	There would be no impact related to soils	Up to 368 acres would be initially disturbed 165 acres would be reclaimed 203 acres of permanent impact to soils	Up to 350 acres would be initially disturbed Up to 147 acres would be reclaimed 203 acres of permanent impact to soils	Up to 270 acres would be initially disturbed Up to 112 acres would be reclaimed 158 acres of permanent impact to soils
Water Resources				
Surface Water	There would be no impact related to water resources	The Proposed Project would have a low potential to affect surface water resources	Same as Alternative B	Same as Alternative B
Ground Water	There would be no impact related to water resources	Blasting should not alter the flow of springs in the Proposed Project area	Same as Alternative B	Same as Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
Noise				
Increased noise levels near residences and wildlife habitat	No effect Existing background noise levels in the area would continue	Noise from large trucks during construction would be temporary Operational impact from noise to Sensitive receptors are not expected to occur	Same as Alternative B	Same as Alternative B – shorter in duration Operational impact would have less of a potential to affect recreational users
BIOLOGICAL				
Vegetation				
Removal of vegetation	No change to the existing vegetation beyond the levels identified in the Cassia RMP	Up to 368 acres of vegetation would be directly affected by construction of all Proposed Project features Up to 165 acres reclaimed 203 acres of permanent impact to vegetation	Up to 350 acres of vegetation would be directly affected by project construction of all Proposed Project features Up to 147 acres reclaimed 203 acres of permanent impact to vegetation	Up to 282 acres of vegetation would be directly affected by project construction of all Proposed Project features Up to 123 acres reclaimed 158 acres of permanent impact to vegetation
Noxious weeds	No change to the existing vegetation beyond the levels identified in the Cassia RMP	Disturbance of vegetation could lead to the establishment and spread of noxious weeds, which would increase direct competition for limited resources (nutrients, water, space, etc.) with native or desired vegetation Indirectly, these species could augment the amount and continuity of fuels, which could lead to increased fire return intervals	Same as Alternative B	Same as Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	B	C	D
Wildlife				
Loss of big game winter range	There would be no adverse impact	Winter range would be permanently eliminated on up to 105 acres of mule deer habitat and 194 acres of bighorn sheep habitat Mountain lions could be initially displaced by construction activities, but would likely habituate to Proposed Project features over time	Winter range would be permanently eliminated on up to 62 acres of mule deer habitat and 162 acres of bighorn sheep habitat Impacts to mountain lions would be the same as Alternative B	Winter range would be permanently eliminated on up to 58 acres of mule deer habitat and 115 acres of bighorn sheep habitat Impacts to mountain lions would be the same as Alternative B
Big game displacement and/or stress	There would be no adverse impact	Displacement of big game from Proposed Project construction and operation. Potential displacement impact from increased human activity.	Same as Alternative B	Smaller project size would result reduced area of displacement and less areas of improved public access Displacement would still occur but on a smaller scale
General wildlife habitat	There would be no adverse impact	Wildlife could be negatively affected by increased traffic and human presence on Cotterel Mountain Permanent loss of 203 acres of potential habitat	Same as Alternative B	Permanent loss of 158 acres of potential habitat Smaller project size would result in reduced area of displacement and less areas of improved public access

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
Estimated annual avian and bat mortality due to collision with wind towers or power lines	There would be no adverse impact	Raptors = 0-63 mortalities All birds = 0-934 mortalities Bats = 0-667 mortalities Upper end mortality estimates are based on total avian numbers from point counts, mortality at other operating wind projects and total rotor swept area with an operating capacity factor of 35% applied. This estimate assumes that all birds flying within the rotor swept area would be killed (worst case scenario)	Raptors = 0-81 mortalities All birds = 0-1188 mortalities Bats = 0-848 mortalities Assumes larger rotor swept area Same as Alternative B	Raptors = 0-66 mortalities All birds = 0-968 mortalities Bats = 0-691 mortalities Assumes larger rotor swept area Same as Alternative B
Nesting raptors	There would be no adverse impact	Wind turbines would be sited greater than ¼ mile from the three golden eagle nests Blasting during nesting season could result in nest abandonment Resident hunting raptors may avoid the vicinity of the turbines Habitat lost to construction would result reduced prey base	Same as Alternative B Same as Alternative B	Same as Alternative B Same as Alternative B
Loss of sage-grouse winter range	Existing situation expected to continue	Direct loss of 68 acres Displacement from up to 6,435 acres	Direct loss of 48 acres Displacement from up to 5,716 acres	Direct loss of 34 acres Displacement from up to 4,585 acres

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
Loss of sage-grouse nesting habitat	Existing situation expected to continue	Direct loss of 33 acres Displacement from up to 5,605 acres	Direct loss of 28 acres Displacement from up to 4,890 acres	Direct loss of 15 acres Displacement from up to 3,194 acres
Displacement of sage-grouse from lek sites	Existing situation expected to continue	Direct loss of 84 acres Displacement from up to 3,395 acres	Direct loss of 77 acres Displacement from up to 3,345 acres	Direct loss of 52 acres Displacement from up to 3,255 acres
Displacement of bats from hibernation sites	Existing situation expected to continue	Noise and percussion from blasting, drilling, digging, and movement of large vehicles could displace roosting, breeding, or hibernating bat species	Same as Alternative B	The smaller project would require less blasting resulting in a reduced potential for displacement of roosting, breeding, or hibernating bat species
Threatened and Endangered Species				
Bald Eagle	There would be no adverse impact	Small potential for direct mortality or injury from electrocution, collisions with transmission lines, or turbine blades	Same as Alternative B	Same as Alternative B
Gray Wolf	Gray wolves are not known to occur on Cotterel Mountain; therefore, there would be no adverse impact	Same as Alternative	Same as Alternative A	Same as Alternative A

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	B	C	D
BLM Sensitive Species	Existing situation expected to continue	Cliff chipmunk populations would be affected during construction. These areas would likely be avoided or abandoned, but once construction is complete and disturbance levels decline, cliff chipmunks would be expected to reoccupy habitats near the facility Nesting and non-breeding golden eagles could be adversely affected not only by construction disturbance, but also from potential collisions with turbines	The impact of Alternative C to special status species would be similar to those expected to occur under Alternative B, with slightly smaller areas of permanent and temporary impacts from project construction and fewer turbines	The impact of Alternative D to special status species would be similar to those expected to occur under Alternative B and C, with slightly smaller areas of permanent and temporary impacts from project construction
CULTURAL RESOURCES				
Prehistoric Resources	There would be no effect	No Effect	Same as Alternative B	Same as Alternative B
American Indian Concerns	There would be no effect	Concerns have been identified	Same as Alternative B	Same as Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	B	C	D
Historical Resources	There would be no effect	Alternative B would have no impact to sites CM-S-5, CM-S-16, CM-S-20, CM-S-22, or 10CA629 since each of these is located outside of the area of potential effects and would be avoided Proposed Project impacts to the remaining 21 sites, and to any sites discovered during additional survey of the transmission lines and access roads, would range from no impact to high impact depending on the degree of loss of integrity to the site and on the significance of the site	Impacts for Alternative C are similar to impacts for Alternative B with the exception that the Proposed Project would have no impact to site CM-S-17 in Alternative C. This site would be avoided	Impacts for Alternative D are similar to impacts for Alternative C with the exception that the Proposed Project would have no impact to sites CM-S-21, CM-S-22, CM-S-18, and CM-S-1 in Alternative D. Alternative D would have the fewest impacts to historical and cultural resources
SOCIOECONOMIC				
Regional Economy and Community	There would be no impact or changes to regional or local socioeconomic conditions. The Proposed Project area would continue to function as a dispersed recreation area and would continue to provide seasonal grazing opportunities for livestock. The Mini-Cassia area would not experience the tax revenue benefits that would be associated with the project	Impact due to temporary direct and secondary increase in jobs, income, and spending Construction cost of $200 million. Local and regional labor force could fill positions, and local lodging could accommodate workers Increase in population would be small	Impacts would be similar to Alternative B	Temporary direct and secondary increase in jobs, income and spending. Construction cost of approximately $100 million One-time influx of sales tax revenue, less than under Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
Regional Economy and Community (continued)		No effect on local businesses No impact on tourism Impact of one-time influx of sales tax revenue of approximately $500,000 Permanent increase in jobs, income, and spending. Annual operation cost would be $4.5 million No relocations, displacements, substantial growth of concentration of population, and related demand for public services would occur Additional property tax revenue to the school district		Annual operation cost would be $2.3 million. Permanent increase in jobs, income, and spending would be less than under Alternative B Beneficial impact upon annual property tax revenues, similar in type but less than Alternative B Beneficial impact of permanent increase in sales tax revenue, similar in type but less than under Alternative B Impact to population and demand for public services would be less than under Alternative B
Property Values	There would be no effect	Impacts to property values are not likely	Same as Alternative B	Same as Alternative B
Environmental Justice	There would be no effect	Environmental justice impacts are limited to American Indian Concerns	Same as Alternative B	Same as Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
LAND USE				
Public Access	There would be no effect	Public access to federal and state lands within the Proposed Project area would not be restricted, except during construction of the project for safety purposes Following project construction, public access to federal and state lands would be improved with 24.5 miles of new or reconstructed roads	Public access on the ridgeline would be altered from Alternative B to become a combination of new project roads and existing and newly constructed primitive roads Public use of project roads would be restricted through a series of gates and natural rock barriers but would not result in a loss of access to traditional use areas Primitive access would be maintained wherever possible by linking the existing primitive road system through construction of new primitive roads	Same as Alternative C

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	B	C	D
Recreation	Based on the activities outlined in the Cassia RMP, no change to recreation opportunities or degree of typical use would be anticipated in the area, beyond some minor modifications to recreation facilities and trails These modifications are expected to enhance the recreation spectrum in the Proposed Project area	During construction of the Proposed Project, noise, dust, traffic, equipment use, and associated human activities would change the character of the area and result in a temporary loss of recreational opportunities Wind turbines would be located within about 760 feet of the Coe Creek picnic site Proposed Project could result in change of visitor/use or experience. Changes to recreation use would not alter the current recreational opportunities spectrum category (semiprimitive motorized) for Cotterel Mountain	Construction impacts would be the same as Alternative B Wind turbines would be located within about ¼ mile (1,400 feet) of the Coe Creek picnic site Visitors may be able to hear the turbines during times of turbine operation but less so than under Alternative B	Construction impacts would be the same as Alternative B Wind turbines would be located within about ¼ mile (1,400 feet) of the Coe Creek picnic site Overall smaller project would result in reduced impacts to recreational users
Land Status	There would be no effect	No affect to existing surface land ownership or mineral ownership	Same as Alternative B	Same as Alternative B
Rights-of-Ways	There would be no effect	Future ROWs would not be affected by the Proposed Project Approval would continue to be obtained from the BLM in accordance with the processes outlined in 43 CFR 2800 and the BLM Right -of-Way Handbook (H-2800-1). An amendment to the land use plan may be required	Same as Alternative B	Same as Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	B	C	D
Livestock Grazing	Based on the Cassia RMP no changes to grazing would be expected beyond some vegetation treatments or minor range improvement projects There would be no modification of the existing acres, AUM, range conditions, or improvements outside those identified in the Cassia RMP	Temporary loss of up to 165 acres of rangeland vegetation Permanent impacts to 203 acres of rangeland vegetation would result in a loss of livestock forage	Temporary loss of up to 147 acres of rangeland vegetation Permanent impacts to 203 acres of rangeland vegetation would result in loss of livestock forage	Temporary loss of up to 112 acres of rangeland vegetation Permanent impacts to 158 acres of rangeland vegetation would result in loss of livestock forage
VISUAL RESOURCES				
Visual Resources	There would be no effect	Vehicle and heavy equipment traffic associated with project construction could results in short-term impacts The operational phase of the project would have long-term impacts to surrounding view sheds and communities Permanent impacts to visual resources would be greatest under this alternative	Short-term impacts to visual resources would be similar to Alternative B, but with fewer trips needed during the construction phase Long-term impacts would also be slightly less based on the reduced number of turbines	Short-term impacts to visual resources would be the lowest under this alternative, and would require the fewest trips during the construction phase Long-term impacts would also be lowest, based on the reduced number of turbines
HAZARDOUS MATERIALS				
Hazardous Materials	There would be no effect	During construction of Alternative B, BMP would be used to avoid spills, leaks, or dumping of hazardous substances	Same as Alternative B	Same as Alternative B

Table 2.8-3. Summary Comparison of Resource Impacts for All Alternatives.

Resource Issue	Alternatives			
	A	**B**	**C**	**D**
FIRE MANAGEMENT				
Fire and Fuels	Under the Alternative A, fire management's ability to suppress wildfire and manage surface fuels within the Proposed Project area would not be affected. Fire frequency and intensity would not be changed by Alternative A	The risk of human caused ignitions would increase Suppression strategies would be limited by the presence of turbines and buried electrical cables Improved, wider roads would act as fire breaks and provide improved access and shorter ground response times Towers would increase the lightning-attractivity of Cotterel Mountain resulting in a potential increase in lightning strikes. This may or may not affect the number of lightning caused ignitions	Same as Alternative B	Impacts would be similar to B, but the risk of human caused ignitions would lower due to overall smaller project size Suppression strategies would not be limited on east ridge of Cotterel Mountain

2.9 AMENDING THE EXISTING CASSIA RMP

Public land management actions, including the granting of ROW under Title V of the Federal Land Policy and Management Act of 1976, are guided by decisions recorded in the Cassia RMP approved on January 24, 1985. The RMP currently restricts ROW to existing facilities/localities within Management Area 11 (Cotterel Mountain) and thus, the proposed Cotterel Wind Power Project development project is not consistent with the RMP.

When the RMP was completed, development of wind energy was not considered as a potential use on Cotterel Mountain. Since that time, advances in technology and demand for energy, particularly a diversified energy portfolio including renewable sources, have made wind energy development both cost effective and desirable. Wind resource studies, both existing and ongoing as part of this analysis, have shown that Cotterel Mountain is a very good renewable wind resource and potential energy production site.

2.9.1 Purpose and Need to Amend the Existing Cassia RMP

Since the Proposed Project is not consistent with the current direction in the Cassia RMP, there is a legal requirement to amend the land use plan if any of the action alternatives (Alternatives B, C and D) in this analysis are selected. Alternative A would not require an amendment. The planning regulations at 43 CFR 1601 provide for plan amendments for actions that are not presently in conformance with the plan.

The Cassia RMP Management direction for Management Area 11 (which encompasses the Cotterel Mountain range) and generally for the whole area, emphasize the following:

- Expand dispersed recreation opportunities on approximately 18,000 acres south of the communication facility;
- Limit rights-of-way to existing facilities/localities;
- Manage the area to maintain scenic quality and open space;
- Improve 31,212 acres of poor and fair condition rangeland to good;
- Provide 5,278 animal unit months of forage for livestock;
- Provide forage for and following mule deer by season of use: 403 spring; 403 summer; 403 fall; 563 winter;
- Provide yearlong forage for 127 antelope;
- Maintain or improve 6,414 acres of crucial deer winter range and 703 acres of sage-grouse brood-rearing habitat;
- Protect nesting ferruginous hawks from human disturbance;
- Control surface disturbing activities on 5,677 acres having soils with high erosion potential;
- Transfer 440 acres out of federal ownership (this action has already been completed);
- Protect any known and potential ferruginous hawk nesting sites (isolated juniper trees);

- Restrict activity within 2,300 – 3,000 feet of known ferruginous hawk nest sites from March 1 to July 15;
- No surface occupancy within ½-mile of active ferruginous hawk nest sites;
- Maintain cover in deer migration routes;
- Protect meadow seeps and springs to provide for needed production of water, forbs and insects within upland game ranges; and
- Improve raptor habitat by modifying selected sections of power lines where a problem has been identified.

These management objectives were developed in 1985 and are guidelines to help achieve what was then the desired future condition of the management area. While some of the objectives have been achieved, the BLM continues to work toward those objectives that are still desired.

The purpose of the proposed amendment is to modify the ROW restriction in Management Area 11 (containing the Cotterel Mountain range) such that granting of a ROW for and construction of a wind energy development would be consistent with the land use plan.

2.9.2 Planning Process

The planning action is to amend the Cassia RMP as a part of this EIS. This action is being done using the BLM 1600 manual guidance, Idaho State BLM instruction memoranda, and the planning regulations published as 43 CFR, part 1600.

To initiate the plan amendment process, a Notice of Intent (NOI) to prepare a land use plan amendment was published in the Federal Register and local newspapers in December of 2002. The notice invited the public, state and local governments and other federal agencies to participate in the planning process by attending any or all of three public scoping meetings held in Albion, Burley and Boise in January of 2003 and submitting comments in person or by mail. In addition to the publication, the scoping statement was sent out to a mailing list of approximately 150 interested parties. A large paid advertisement was also placed in the local newspapers by the Applicant announcing the public meetings. Briefing sessions were held in February, March and April of 2003 for County Commissioners, City Councils and other interested groups around the Mini-Cassia area. Through public meetings, letters, briefings and other notices, the public has been given the opportunity to comment on and provide additional information on this proposal. In addition, government-to-government consultation was conducted with both the Shoshone-Bannock and the Shoshone-Paiute Native American Tribes and BLM coordinated closely with other state and federal agencies with an interest in the Proposed Project. All comments were considered in preparation of this analysis. These considerations brought to light additional issues and prompted additional and more comprehensive wildlife and wildlife habitat studies for preparation of the analysis.

2.9.3 Planning Issues and Criteria

The NOI listed the planning issues BLM anticipated and invited the public, other federal agencies, and state and local governments to identify additional concerns or issues during scoping meetings and the 60-day comment period that followed.

Planning Issues

The issues identified through public scoping and used to develop alternatives are as follows:

- Migratory birds
- Sage-grouse
- Maintaining and protecting tribal treaty rights or heritage links to public lands
- Public access
- Visual resources
- Raptor migration
- Consistency with the RMP

Planning Criteria

The following general planning criteria are being considered in the development of the proposed plan amendment:

- NEPA
- Existing laws, regulations, and BLM policies
- Plans, programs and policies of other federal, state and local governments, and Indian Tribes
- Public input
- Future needs and demands for existing or potential resource commodities and values
- Past and present use of public and adjacent lands
- Environmental impacts
- Social and economic values
- Public welfare and safety
- President’s National Energy Policy

2.9.4 Proposed Plan Amendment to the Existing Cassia RMP

Alternatives B, C, or D if selected, would require a plan amendment to the Cassia RMP. This proposed amendment would allow the granting of a ROW on Cotterel Mountain for a wind energy development project and related transmission interconnect line. There is currently a restriction in the Cassia RMP that limits ROW to existing facilities and locations. This restriction would be rewritten to allow the development of one wind energy project. The amended restriction would read, “limit rights-of-way to existing facilities/localities, with the exception of one wind energy project.”

The proposed amendment would also involve changing the language in item B from the Resource Management Objectives on page 39 of the Cassia RMP which currently reads: "Manage the area to maintain scenic quality and open space." The new language would read: "Manage the area to maintain scenic quality and open space consistent with the Visual Resource Management (VRM) classes for management area 11 and with the exception of the development of one wind energy project." The area is classified VRM Class IV, in which, projects such as the proposed action are acceptable. In addition, the existing Resource Management Objective G, also on page 39 of the RMP currently reads: "Maintain or improve 6,414 acres of crucial deer winter range and 703 acres of sage-grouse brood-rearing habitat." It would be revised to read as follows: "Maintain or improve 6,414 acres of crucial deer winter range" (Alternatives B, C, and D); "Maintain or improve 600 acres of sage-grouse brood rearing habitat" (Alternatives B and C); or "Maintain or improve 703 acres of sage-grouse brood rearing habitat" (Alternative D).

Additional ROW proposals would not be considered under the proposed amendment. If additional ROW are proposed in this management area, which appear to have merit, they would require additional amendments to the RMP and be subject to full and complete analysis in accordance with NEPA.

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